

Assignment Date: 15/4/20
Submission Date: 18/4/20
Time : 1 hour

classmate
Date _____
Page _____

Sant Nirankari Public School - Malviya Nagar

Subject: English

Class: VII

Assignment - 3

Lesson - 1

Three Questions

English Course Book (Honeycomb)

- Learn these words and their usage.
(i) important (ii) impossible (iii) soldiers
(iv) magicians (v) wound (vi) messengers
(vii) ordinary (viii) bodyguard (ix) fainted
(x) remember.
- Why did the king want to know answers to three questions?
- Messengers were sent throughout the Kingdom to
(Complete the sentence)
- Match the columns

Column A	Column B
(i) wounded	got up from the sleep
(ii) awoke	give back
(iii) forgive	small patches of ground for plants
(iv) faithful	severely injured
(v) pity	pardon
(vi) beds	loyal
(vii) return	feel sorry for
- What were the answers to the three questions?

6. How did the king and the hermit help the poor man?
7. Who was the bearded man? Why did he ask for the king's forgiveness?
8. The king forgave the bearded man. What did he do to show his forgiveness?

Assignment Date: 22/4/2020

Date of Submission: 25/4/2020

classmate

Date

Page

Time: 1 hour

Sant Nirankari Public School - Malviya Nagar

Subject: English

Class: VII

Assignment - 4

Lesson - 1 (Grammar)

Sentences

1. Tick (✓) the group of words that are sentences.
- (i) will not be
 - (ii) I am very glad that you came.
 - (iii) What a beautiful dress!
 - (iv) India's victory

2. Read the following sentences.
Underline the subject and circle the predicate.

- (i) Mother told an interesting story.
- (ii) India is a densely populated country.
- (iii) Mahi's batting was flawless in the match.

3. Write five assertive sentences.

4. Use the given words and frame interrogative sentences.

- (i) Who (ii) Why (iii) What (iv) Is (v) Are

5. Rearrange the following words to make imperative sentences. Use punctuation marks.

- (i) in the library don't make a noise
- (ii) you my question answer
- (iii) take medicines regularly you should your

6. Rearrange the following words to form exclamatory sentences and punctuate them

- (i) a well-behaved child what you are
- (ii) lovely is the how view.
- (iii) a pleasant surprise what

7. Rearrange the following words to form interrogative sentences and add appropriate punctuation marks.

- (i) what you will do with these packets
- (ii) where you kept have all the stationery
- (iii) why you are laughing.

Assignment

classmate

Date _____

Page _____

Date: 3-4-2020

Sant Nirankari Public School - Malviya Nagar

Subject: English

Class: VII

Assignment - I

Date of submission: 6/4/20

Time: 40 minutes

Lesson - 1 (English Supplementary Reader) The Tiny Teacher

1. Fill in the blanks

(i) Ants live in comfortable homes called _____.

(ii) An ant's life is very _____.

(iii) Soldier ants guard the _____.

(iv) A queen ant lives for about _____.

(v) An ant uses its _____ to 'talk' to other ants.

(vi) We know about an ant's life because _____.

2. Learn spellings and make sentences (with the given words).

(i) population (ii) cocoons (iii) pleasant

(iv) training (v) beetles (vi) intelligently

3. What are grubs?

4. Do you appreciate ants? If yes, why?

5. Where do the worker ants live?

6. State whether the following statements are true or false.

(i) Worker ants harm the grubs _____.

(ii) An ant fights with other members of her group _____.

Read the following passage.

Parimarjan began playing chess when one of his father's friends presented him with a chess set when he was four. He fell in love with the game immediately and it didn't take his parents long to discover that chess wasn't just a hobby for him.

Before long, Parimarjan started playing in tournaments and began to make his presence felt at the national and international events. He's done pretty well in quite a few of them, winning medals at the World, Asian and Commonwealth meets. At 13 years and 142 days, Parimarjan Negi became the World's second youngest ever Grandmaster on July 1, 2006 in Satka, Russia.

Parimarjan is a truly gifted player who spends hours practicing. He is unperturbed by losses. And he holds a number of records: He is the youngest Indian to get the International Master title, the youngest Indian to beat a GM and the youngest Indian to get the GM title.

The journey is never easy after you become a GM but knowing Parimarjan, one could safely say that the boy would relish all the challenges that he would come across that journey.

..... Page Break

(i) Select the most suitable option.

(i) Parimarjan started playing chess
(a) at a very young age
(b) as a teenager
(c) during his college days

(ii) The full form of GM is
(a) Great Master
(b) Grand Master
(c) Game Master

(iii) Parimarjan holds
(a) very few records
(b) one record
(c) a number of records

- (iv) Parimarjan is the youngest Indian to _____
(v) The journey after you become a GM is very easy. (True / False)
(vi) Parimarjan has won only Asian medals. (correct the statement)
(vii) Find a word from the passage which means the same as 'quickly'.
(viii) On July 1, 2006 Parimarjan Negi became _____

कविता

हम पंछी उन्मुक्त गगन के

हम पंछी उन्मुक्त गगन के
पिंजरबद्ध न गा पाएंगे
कनक- तीलियों से टकराकर
पुलकित पंख टूट जाएंगे ।
हम बहता जल पीनेवाले
मर जाएंगे भूखे- प्यासे
कहीं भली है कटुक निबोरी
कनक- कटोरी की मैदा से ।

स्वर्ण- श्रृंखला के बंधन में
अपनी गति, उड़ान सब भूले
बस सपनों में देख रहे हैं
तरू की फुनगी पर के झूले ।
ऐसे थे अरमान कि उड़ते
नील गगन की सीमा पाने
लाल किरण- सी चोंच खोल
चुगते तारक- अनार के दाने ।

होती सीमाहीन क्षितिज से
इन पंखों की होड़ा-होड़ी
या तो क्षितिज मिलन बन जाता
या तनती साँसों की डोरी ।
नीड़ न दो, चाहे टहनी का
आश्रय छिन्न-भिन्न कर डालो
लेकिन पंख दिए हैं तो
आकुल उड़ान में विघ्न न डालो ।

कवि- शिवमंगल सिंह सुमन

कठिन शब्दों के अर्थ

1. पक्षी = चिड़िया
2. रागन = आकाश
3. कनक-तीलियो = सोने की सलाखें
4. कटुक = कड़वी
5. कनक = सोना
6. निबारी = नीम का फल
7. गति = चाल
8. तारक = तारों के समान
9. तरु = वृक्ष
10. नीड़ = घोंसला
11. सीमाहीन = जिसका कोई अंत न हो
12. आश्रय = सहारा
13. धिब्ब-भिब्ब = जड़
14. आकुल = बेचैन
15. विद्वज्ज = रुकावट

1. प्रश्न 'हम पंथी उन्मुक्त रागन के' (कविता) कवि का नाम लिखिए।
2. प्रश्न कठिन शब्दों के अर्थ याद कराकर लिखिए-

I. बहुविकल्पीय प्रश्न

- (i) 'हम पंछी उन्मुक्त गगन के पाठ के रचयिता इनमें से कौन हैं?
- (क) रामधारी सिंह 'दिनकर' (ख) शिवमंगल सिंह 'सुमन'
(ग) महादेवी वर्मा (घ) सूर्यकांत त्रिपाठी 'निराला'।
- (ii) पक्षी अपना मधुर गीत कब नहीं गा पाएँगे?
- (क) पिंजरे के बाहर रहकर (ख) पिंजरे से उड़कर
(ग) पिंजरे के पास रहकर (घ) पिंजरे में बंद होकर।
- (iii) पक्षी कहाँ का जल पीना पसंद करते हैं?
- (क) सागर का पानी (ख) नदी एवं झरने का बहता पानी
(ग) पिंजरे में रखी कटोरी का पानी (घ) तालाब का ठहरा पानी।
- (iv) पक्षियों के लिए पिंजरे में रखे मैदा से बेहतर इनमें से क्या हैं?
- (क) आम का फल (ख) जंगल के मीठे फल
(ग) नीम का फल (घ) खेत के अनाज।

हम पंछी उन्मुक्त गगन के**सप्रसंग व्याख्या**

1. हम पंछी उन्मुक्त गगन के

पिंजरबद्ध न गा पाएँगे,

कनक-तीलियों से टकराकर

पुलकित पंख टूट जाएँगे।

हम बहता जल पीनेवाले

मर जाएँगे भूखे-प्यासे,

कहीं भली है कटुक निबौरी

कनक-कटोरी की मैदा से।

(पृष्ठ संख्या-1)

शब्दार्थ—पंक्षी—चिड़िया। **उन्मुक्त**—खुला। **गगन**—आकाश। **पिंजरबद्ध**—पिंजड़े में बंधे हुए। **कनक-तीलियाँ**—सोने की सलाखें। **पुलकित**—खुशी से फड़कते। **कटुक**—कड़वी। **निबौरी**—नीम का फल। **कनक**—सोना।

प्रसंग—प्रस्तुत पंक्तियाँ श्री शिवमंगल सिंह 'सुमन' द्वारा रचित 'हम पंछी उन्मुक्त गगन के' नामक कविता से उद्धृत हैं। इनमें पक्षियों के माध्यम से गुलामी की अपेक्षा आजादी के महत्व को दर्शाया गया है।

व्याख्या—पक्षी खुले आकाश में विचरण करते हैं। यह उनका स्वभाव है तथा उनकी स्वाभाविक विशेषता भी है। यदि उन्हें पिंजड़े में बंद कर दिया गया तो वह गा नहीं पाएँगे क्योंकि गीत खुशी में गाए जाते हैं और आकाश में उड़ने वाले पक्षी पिंजड़े में बंद होकर कभी खुश नहीं रह सकते। हम उन्हें सोने के पिंजड़े में रखें तो भी कुछ फर्क नहीं पड़ने वाला। सलाखें चाहे सोने की हो या लोहे की, पर खुशी में फड़फड़ाते उनके पंख तोड़कर हीं छोड़ेंगी। पक्षी यह बात जानते हैं, इसलिए वह कह रहे हैं कि नदियों और

झरनों का बहता जल पीने की उन्हें आदत है। सोने के पिंजड़े का खाना पानी उन्हें अच्छा नहीं लगेगा और वह भूखे प्यासे मर जाएँगे। उन्हें तो आज़ाद रह कर कड़वी निबौरी खाना ही पसंद है। गुलामी में मिली सोने की कटोरी की मैदा उन्हें कभी रास नहीं आएगी क्योंकि पराधीनता में मिले व्यंजन कभी स्वादिष्ट लग ही नहीं सकते।

2. स्वर्ण-शृंखला के बंधन में

अपनी गति, उड़ान सब भूले,
बस सपनों में देख रहे हैं
तरु की फुनगी पर के झूले।
ऐसे थे अरमान के उड़ते
नीले नभ की सीमा पाने,
लाल किरण-की चोंच खोल
चुगते तारक अनार के दाने।

(पृष्ठ संख्या-1)

शब्दार्थ—**स्वर्ण-शृंखला**—सोने की कड़ियाँ। **बंधन**—बंधा होना। **गति**—चाल, वेग, तीव्रता। **उड़ान**—उड़ने की कला, उड़ने की प्रक्रिया। **तरु**—वृक्ष, पेड़। **फुनगी**—सबसे ऊँची टहनी का ऊपरी भाग। **अरमान**—इच्छा, खाहिश। **नभ**—आकाश। **सीमा**—अंतिम छोर। **चुगना**—एक-एक दाना चोंच से उठाकर खाना। **तारक**—तारों के समान।

प्रसंग—प्रस्तुत पंक्तियाँ श्री शिवमंगल सिंह 'सुमन' द्वारा रचित 'हम पंछी उन्मुक्त गगन के' नामक कविता से उद्धृत हैं। इन पंक्तियों में पक्षियों के माध्यम से परतंत्रता के कष्टमय जीवन से अवगत कराया गया है।

व्याख्या—पक्षी कहते हैं कि सोने के पिंजरे में कैद होकर वह अपनी गति और उड़ने की कला सब भूल गए हैं। पहले वह वृक्ष की सबसे ऊपर की टहनी के सिरे पर बैठ कर झूला करते थे। अब यह एक सपना बन कर रह गया है। उनकी इच्छा थी कि वह कभी उड़ते-उड़ते नीले आकाश के उस छोर तक पहुँच जाएँगे, जहाँ वह समाप्त होता है। उनका अरमान था कि किरणों जैसी अपनी लाल चोंच से वह तारों जैसे अनार के दाने चुगेंगे, परन्तु गुलामी के जीवन ने उनके सारे सपनों और अरमानों का गला घोट दिया है। उनकी खुशियाँ उनसे छिन गई हैं। अब तो वे पिंजरे में बंदी बनकर रह गए हैं।

3. होती सीमाहीन क्षितिज से

इन पंखों की होड़ा-होड़ी,
या तो क्षितिज मिलन बन जाता
या तनती साँसों की डोरी।
नीड़ न दो, चाहे टहनी का
आश्रय छिन्न-भिन्न कर डालो,
लेकिन पंख दिए हैं तो
आकुल उड़ान में विघ्न न डालो।

(पृष्ठ संख्या-2)

शब्दार्थ—**सीमाहीन**—जिसका कोई अंत न हो। **क्षितिज**—वह काल्पनिक स्थान जहाँ धरती और आकाश मिलते हुए प्रतीत होते हैं। **होड़ा-होड़ी**—प्रतिस्पर्धा। **मिलन**—दो या अधिक प्राणियों का मिलना। **तनती साँसों की डोरी**—मर जाना, प्राण निकल जाना। **नीड़**—घोंसला। **आश्रय**—सहारा, ठिकाना। **छिन्न-भिन्न**—नष्ट। **आकुल**—बेचैन। **विघ्न**—व्यवधान, रुकावट।

प्रसंग—प्रस्तुत पंक्तियाँ श्री शिवमंगल सिंह 'सुमन' द्वारा रचित कविता 'हम पंछी उन्मुक्त गगन के' नामक कविता से उद्धृत हैं। इन पंक्तियों में पक्षी आजाद रहने की इच्छा व्यक्त कर रहे हैं।

व्याख्या—इन पंक्तियों में पक्षी कह रहे हैं कि अगर वे आजाद होते तो उड़ते-उड़ते आकाश की सीमा ढूँढने निकल जाते। अपने इस प्रयास में या तो वह क्षितिज के आखिरी छोर तक पहुँच कर ही दम लेते या अपने प्राण त्याग देते। पक्षियों द्वारा व्यक्त उनकी इस इच्छा से पता चलता है कि अपनी आजादी उन्हें कितनी प्रिय है। पक्षी पुनः विनयपूर्वक कहते हैं कि भले ही कोई उनसे उनका घोंसला छीन ले या पेड़ की डालियों का उनका ठिकाना नष्ट कर दे, लेकिन जब ईश्वर ने उन्हें पंख दिए हैं तो उनके उड़ने का अधिकार उनसे न छीना जाए। उन्हें पिंजड़े में बंदकर उनकी उड़ने की इच्छा को न मारा जाए। उनकी आजादी उनसे न छीनकर उन्हें अंतहीन आकाश में उड़ने दिया जाए।

प्र०1 हर तरह की सुख सुविधाएँ पाकर भी पक्षी पिंजरे में बंद क्यों नहीं रहना चाहते ?

प्र०2 पक्षी उन्मुक्त रहकर अपनी कौन-कौन सी इच्छाएँ पूरी करना चाहते हैं ?

प्र०3 भाव स्पष्ट कीजिए-

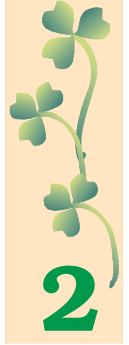
या तो क्षितिज मिलन बन जाता/या तनती साँसों की डोरी।

पाठ-शु
काकी गाँ

शब्दार्थ

लेखक-शिव प्रसाद सिंह

1. उवर - बुखार
2. हुड़क - चाहत
3. विशुचिका - दूत की बीमारी
4. नाड़ी - नब्ज
5. संक - बकसा
6. वात्याचक्र - घुटनाक्रम
7. कालन - आँवन
8. कार - परीजन - काम धंधा
9. विलंब - देर
10. नाक रगड़ना - खुशामद करना



दादी माँ 2

क मज्जोरी ही है अपनी, पर सच तो यह है कि ज़रा-सी कठिनाई पड़ते; बीसों गरमी, बरसात और वसंत देखने के बाद भी, मेरा मन सदा नहीं तो प्रायः अनमना-सा हो जाता है। मेरे शुभचिंतक मित्र मुँह पर मुझे प्रसन्न करने के लिए आनेवाली छुट्टियों की सूचना देते हैं और पीठ पीछे मुझे कमजोर और ज़रा-सी प्रतिकूलता से घबरानेवाला कहकर मेरा मज़ाक उड़ाते हैं। मैं सोचता हूँ, 'अच्छा, अब कभी उन बातों को न सोचूँगा। ठीक है, जाने दो, सोचने से होता ही क्या है'। पर, बरबस मेरी आँखों के सामने शरद की शीत किरणों के समान स्वच्छ, शीतल किसी की धुँधली छाया नाच उठती है।

मुझे लगता है जैसे क्वार के दिन आ गए हैं। मेरे गाँव के चारों ओर पानी ही पानी हिलोरें ले रहा है। दूर के सिवान से बहकर आए हुए मोथा और साईं की अधगली घासों, घेऊर और बनप्याज़ की जड़ें तथा नाना प्रकार की बरसाती घासों



के बीज, सूरज की गरमी में खौलते हुए पानी में सड़कर एक विचित्र गंध छोड़ रहे हैं। रास्तों में कीचड़ सूख गया है और गाँव के लड़के किनारों पर झागभरे जलाशयों में धमाके से कूद रहे हैं। अपने-अपने मौसम की अपनी-अपनी बातें होती हैं। आषाढ़ में आम और जामुन न मिलें, चिंता नहीं, अगहन में चिउड़ा और गुड़ न मिले, दुख नहीं, चैत के दिनों में लाई के साथ गुड़

की पट्टी न मिले, अफ़सोस नहीं, पर क्वार के दिनों में इस गंधपूर्ण झागभरे जल में कूदना न हो तो बड़ा बुरा मालूम होता है। मैं भीतर हुड़क रहा था। दो-एक दिन ही तो कूद सका था, नहा-धोकर बीमार हो गया। हलकी बीमारी न जाने क्यों मुझे अच्छी लगती है। थोड़ा-थोड़ा ज्वर हो, सर में साधारण दर्द और खाने के लिए दिनभर नींबू और साबू। लेकिन इस बार ऐसी चीज़ नहीं थी। ज्वर जो चढ़ा तो चढ़ता ही गया। रज़ाई पर रज़ाई-और उतरा रात बारह बजे के बाद।

दिन में मैं चादर लपेटे सोया था। दादी माँ आई, शायद नहाकर आई थीं, उसी झागवाले जल में। पतले-दुबले स्नेह-सने शरीर पर सफ़ेद किनारीहीन धोती, सन-से सफ़ेद बालों के सिरों पर सद्यः टपके हुए जल की शीतलता। आते ही उन्होंने सर, पेट छुए। आँचल की गाँठ खोल किसी अदृश्य शक्तिधारी के चबूतरे की मिट्टी मुँह में डाली, माथे पर लगाई। दिन-रात चारपाई के पास बैठी रहतीं, कभी पंखा झलतीं, कभी जलते हुए हाथ-पैर कपड़े से सहलातीं, सर पर दालचीनी का लेप करतीं और बीसों बार छू-छूकर ज्वर का अनुमान करतीं। हाँडी में पानी आया कि नहीं? उसे पीपल की छाल से छौंका कि नहीं? खिचड़ी में मूँग की दाल एकदम मिल तो गई है? कोई बीमार के घर में सीधे बाहर से आकर तो नहीं चला गया, आदि लाखों प्रश्न पूछ-पूछकर घरवालों को परेशान कर देतीं।

दादी माँ को गँवई-गाँव की पचासों किस्म की दवाओं के नाम याद थे। गाँव में कोई बीमार होता, उसके पास पहुँचतीं और वहाँ भी वही काम। हाथ छूना, माथा छूना, पेट छूना। फिर भूत से लेकर मलेरिया, सरसाम, निमोनिया तक का अनुमान विश्वास के साथ सुनातीं। महामारी और विशूचिका के दिनों में रोज़ सवेरे उठकर स्नान के बाद लवंग और गुड़-मिश्रित जलधार, गुग्गल और धूप। सफ़ाई कोई उनसे सीख ले। दवा में देर होती, मिश्री या शहद खत्म हो जाता, चादर या गिलाफ़ नहीं बदले जाते, तो वे जैसे पागल हो जातीं। बुखार तो मुझे अब भी आता है। नौकर पानी दे जाता है, मेस-महाराज अपने मन से पकाकर खिचड़ी या साबू। डॉक्टर साहब आकर नाड़ी देख जाते हैं और कुनैन मिक्सचर की शीशी की तिताई के डर से बुखार भाग भी जाता है, पर न जाने क्यों ऐसे बुखार को बुलाने का जी नहीं होता!





किशन भैया की शादी ठीक हुई, दादी माँ के उत्साह और आनंद का क्या कहना! दिनभर गायब रहतीं। सारा घर जैसे उन्होंने सर पर उठा लिया हो। पड़ोसिनें आतीं। बहुत बुलाने पर दादी माँ आतीं, “बहिन बुरा न मानना। कार-परोजन का घर ठहरा। एक काम अपने हाथ से न करूँ, तो होनेवाला नहीं।” जानने को यों सभी जानते थे कि दादी माँ कुछ करतीं नहीं। पर किसी काम में उनकी अनुपस्थिति वस्तुतः विलंब का कारण बन जाती। उन्हीं दिनों की बात है। एक दिन दोपहर को मैं घर लौटा। बाहरी निकसार में दादी माँ किसी पर बिगड़ रही थीं। देखा, पास के कोने में दुबकी रामी की चाची खड़ी है। “सो न होगा, धन्नो! रुपये मय सूद के आज दे दे। तेरी आँख में तो शरम है नहीं। माँगने के समय कैसी आई थी! पैरों पर नाक रगड़ती फिरी, किसी ने एक पाई भी न दी। अब लगी है आजकल करने-फसल में दूँगी, फसल में दूँगी...अब क्या तेरी खातिर दूसरी फसल कटेगी?”



“दूँगी, मालकिन!” रामी की चाची रोती हुई, दोनों हाथों से आँचल पकड़े दादी माँ के पैरों की ओर झुकी, “बिटिया की शादी है। आप न दया करेंगी तो उस बेचारी का निस्तार कैसे होगा!”

“हट, हट! अभी नहाके आ रही हूँ!” दादी माँ पीछे हट गई।

“जाने दो दादी,” मैंने इस अप्रिय प्रसंग को हटाने की गरज से कहा, “बेचारी गरीब है, दे देगी कभी।”

“चल, चल! चला है समझाने...”

मैं चुपके से आँगन की ओर चला गया। कई दिन बीत गए, मैं इस प्रसंग को एकदम भूल-सा गया। एक दिन रास्ते में रामी की चाची मिली। वह दादी को ‘पूतों फलो दूधों नहाओ’ का आशीर्वाद दे रही थी! मैंने पूछा, “क्या बात है, धन्नो चाची”, तो उसने विह्वल होकर कहा, “उरिन हो गई बेटा, भगवान भला करे हमारी मालकिन का। कल ही आई थीं। पीछे का सभी रुपया छोड़ दिया, ऊपर से दस रुपये का नोट देकर बोलीं, ‘देखना धन्नो, जैसी तेरी बेटी वैसी मेरी, दस-पाँच के लिए हँसाई न हो।’ देवता है बेटा, देवता।”

“उस रोज़ तो बहुत डाँट रही थीं?” मैंने पूछा।

“वह तो बड़े लोगों का काम है बाबू, रुपया देकर डाँटें भी न तो लाभ क्या!”

मैं मन-ही-मन इस तर्क पर हँसता हुआ आगे बढ़ गया।

किशन के विवाह के दिनों की बात है। विवाह के चार-पाँच रोज़ पहले से ही औरतें रात-रातभर गीत गाती हैं। विवाह की रात को अभिनय भी होता है। यह प्रायः एक ही कथा का हुआ करता है, उसमें विवाह से लेकर पुत्रोत्पत्ति तक के सभी दृश्य दिखाए जाते हैं—सभी पार्ट औरतें ही करती हैं। मैं बीमार होने के कारण बारात में न जा सका। मेरा ममेरा भाई राघव दालान में सो रहा था (वह भी बारात जाने के बाद पहुँचा था)। औरतों ने उस पर आपत्ति की।

दादी माँ बिगड़ीं, “लड़के से क्या परदा? लड़के और बरह्मा का मन एक-सा होता है।”





मुझे भी पास ही एक चारपाई पर चादर उढ़ाकर दादी माँ ने चुपके से सुला दिया था। बड़ी हँसी आ रही थी। सोचा, कहीं जोर से हँस दूँ, भेद खुल जाए तो निकाल बाहर किया जाऊँगा, पर भाभी की बात पर हँसी रुक न सकी और भंडाफोड़ हो गया।

देबू की माँ ने चादर खींच ली, “कहो दादी, यह कौन बच्चा सोया है। बेचारा रोता है शायद, दूध तो पिला दूँ।” हाथापाई शुरू हुई। दादी माँ बिगड़ीं, “लड़के से क्यों लगती है!”

सुबह रास्ते में देबू की माँ मिलीं, “कल वाला बच्चा, भाभी!” मैं वहाँ से जोर से भागा और दादी माँ के पास जा खड़ा हुआ। वस्तुतः किसी प्रकार का अपराध हो जाने पर जब हम दादी माँ की छाया में खड़े हो जाते, अभयदान मिल जाता।

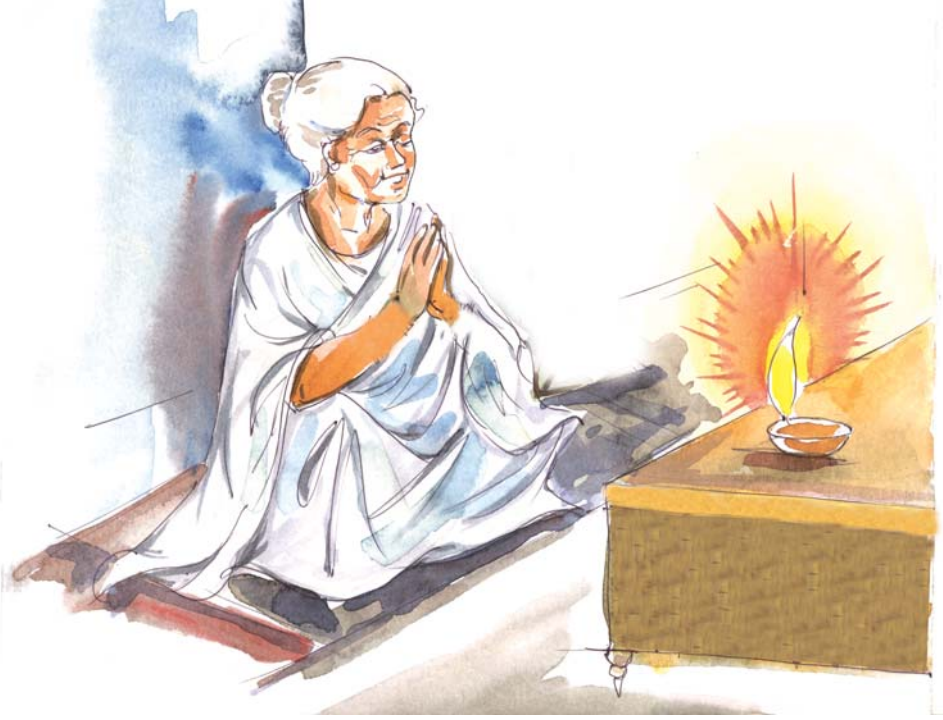
स्नेह और ममता की मूर्ति दादी माँ की एक-एक बात आज कैसी-कैसी मालूम होती है। परिस्थितियों का वात्याचक्र जीवन को सूखे पत्ते-सा कैसा नचाता है, इसे दादी माँ खूब जानती थीं। दादा की मृत्यु के बाद से ही वे बहुत उदास रहतीं। संसार उन्हें धोखे की टट्टी मालूम होता। दादा ने उन्हें स्वयं जो धोखा दिया। वे सदा उन्हें आगे भेजकर अपने पीछे जाने की झूठी बात कहा करते थे। दादा की मृत्यु के बाद कुकुरमुत्ते की तरह बढ़नेवाले, मुँह में राम बगल में छुरीवाले दोस्तों की शुभचिंता ने स्थिति और भी डाँवाडोल कर दी। दादा के श्राद्ध में दादी माँ के मना करने पर भी पिता जी ने जो अतुल संपत्ति व्यय की, वह घर की तो थी नहीं।

दादी माँ अकसर उदास रहा करतीं। माघ के दिन थे। कड़ाके का जाड़ा पड़ रहा था। पछुवा का सन्नाटा और पाले की शीत हड्डियों में घुसी पड़ती। शाम को मैंने देखा, दादी माँ गीली धोती पहने, कोनेवाले घर में एक संदूक पर दिया जलाए, हाथ जोड़कर बैठी हैं। उनकी स्नेह-कातर आँखों में मैंने आँसू कभी नहीं देखे थे। मैं बहुत देर तक मन मारे उनके पास बैठा रहा। उन्होंने आँखें खोलीं। “दादी माँ!”, मैंने धीरे से कहा।

“क्या है रे, तू यहाँ क्यों बैठा है?”

“दादी माँ, एक बात पूछूँ, बताओगी न?” मैंने उनकी स्नेहपूर्ण आँखों की ओर देखा।





“क्या है, पूछा।”

“तुम रोती थीं?”

दादी माँ मुसकराई, “पागल, तूने अभी खाना भी नहीं खाया न, चल-चल!”

“धोती तो बदल लो, दादी माँ”, मैंने कहा।

“मुझे सरदी-गरमी नहीं लगती बेटा।” वे मुझे खींचती रसोई में ले गईं।

सुबह मैंने देखा, चारपाई पर बैठे पिता जी और किशन भैया मन मारे कुछ सोच रहे हैं। “दूसरा चारा ही क्या है?” बाबू बोले, “रुपया कोई देता नहीं। कितने के तो अभी पिछले भी बाकी हैं!” वे रोने-रोने-से हो गए।

“रोता क्यों है रे!” दादी माँ ने उनका माथा सहलाते हुए कहा, “मैं तो अभी हूँ ही।” उन्होंने संदूक खोलकर एक चमकती-सी चीज़ निकाली, “तेरे दादा ने यह कंगन मुझे इसी दिन के लिए पहनाया था।” उनका गला भर आया, “मैंने इसे पहना नहीं, इसे सहेजकर रखती आई हूँ। यह उनके वंश की निशानी है।” उन्होंने आँसू पोंछकर कहा, “पुराने लोग आगा-पीछा सब सोच लेते थे, बेटा।”





सचमुच मुझे दादी माँ शापभ्रष्ट देवी-सी लगीं।
धुँधली छाया विलीन हो गई। मैंने देखा, दिन
काफ़ी चढ़ आया है। पास के लंबे खजूर के
पेड़ से उड़कर एक कौआ अपनी घिनौनी
काली पाँखें फैलाकर मेरी
खिड़की पर बैठ गया।
हाथ में अब भी किशन
भैया का पत्र काँप रहा
है। काली चींटियों-सी
कतारें धूमिल हो रही हैं।
आँखों पर विश्वास नहीं

होता। मन बार-बार अपने से ही पूछ बैठता है—‘क्या सचमुच दादी माँ नहीं रहीं?’

□ शिवप्रसाद सिंह

प्रश्न-अभ्यास

कहानी से

1. लेखक को अपनी दादी माँ की याद के साथ-साथ बचपन की और किन-किन बातों की याद आ जाती है?
2. दादा की मृत्यु के बाद लेखक के घर की आर्थिक स्थिति खराब क्यों हो गई थी?
3. दादी माँ के स्वभाव का कौन सा पक्ष आपको सबसे अच्छा लगता है और क्यों?

कहानी से आगे

1. आपने इस कहानी में महीनों के नाम पढ़े, जैसे-क्वार, आषाढ़, माघ। इन महीनों में मौसम कैसा रहता है, लिखिए।



2. 'अपने-अपने मौसम की अपनी-अपनी बातें होती हैं'—लेखक के इस कथन के अनुसार यह बताइए कि किस मौसम में कौन-कौन सी चीजें विशेष रूप से मिलती हैं?



अनुमान और कल्पना

1. इस कहानी में कई बार ऋण लेने की बात आपने पढ़ी। अनुमान लगाइए, किन-किन पारिवारिक परिस्थितियों में गाँव के लोगों को ऋण लेना पड़ता होगा और यह उन्हें कहाँ से मिलता होगा? बड़ों से बातचीत कर इस विषय में लिखिए।
2. घर पर होनेवाले उत्सवों / समारोहों में बच्चे क्या-क्या करते हैं? अपने और अपने मित्रों के अनुभवों के आधार पर लिखिए।



भाषा की बात

1. नीचे दी गई पंक्तियों पर ध्यान दीजिए—

जरा-सी कठिनाई पड़ते
अनमना-सा हो जाता है
सन-से सफ़ेद

- समानता का बोध कराने के लिए सा, सी, से का प्रयोग किया जाता है। ऐसे पाँच और शब्द लिखिए और उनका वाक्य में प्रयोग कीजिए।
2. कहानी में 'छू-छूकर ज्वर का अनुमान करतीं, पूछ-पूछकर घरवालों को परेशान कर देतीं'—जैसे वाक्य आए हैं। किसी क्रिया को जोर देकर कहने के लिए एक से अधिक बार एक ही शब्द का प्रयोग होता है। जैसे वहाँ जा-जाकर थक गया, उन्हें ढूँढ़-ढूँढ़कर देख लिया। इस प्रकार के पाँच वाक्य बनाइए।
 3. बोलचाल में प्रयोग होनेवाले शब्द और वाक्यांश 'दादी माँ' कहानी में हैं। इन शब्दों और वाक्यांशों से पता चलता है कि यह कहानी किसी विशेष क्षेत्र से संबंधित है। ऐसे शब्दों और वाक्यांशों में क्षेत्रीय बोलचाल की खूबियाँ होती हैं। उदाहरण के लिए—निकसार, बरह्मा, उरिन, चिउड़ा, छौंका इत्यादि शब्दों को देखा जा सकता है। इन शब्दों का उच्चारण अन्य क्षेत्रीय बोलियों में अलग ढंग से होता है, जैसे—चिउड़ा को चिड़वा, चूड़त्र, पोहा और इसी तरह छौंका को छौंक, तड़का भी कहा जाता है। निकसार, उरिन और बरह्मा शब्द क्रमशः निकास, उच्छ्रण और ब्रह्मा शब्द का क्षेत्रीय रूप हैं। इस प्रकार के दस शब्दों को बोलचाल में उपयोग होनेवाली भाषा / बोली से एकत्र कीजिए और कक्षा में लिखकर दिखाइए।



चित्र वर्णन

★ सभी विद्यार्थी चित्रों को देखकर चित्र-
वर्णन कीजिए।







कठिन शब्द

1. अदृश्य
2. यात्री
3. खिड़की
4. पुस्तक विक्रेता
5. प्लेट फॉर्म
6. प्रतीक्षागृह
7. जन्मदिन
8. सुब्बारे
9. उपहार
10. शुभकामनाएँ
11. मिठ - मिठ
12. ललियाँ

सभी विद्यार्थी इन वर्गों का
अभ्यास करें।

अ ध भी

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दिनांक 22-04-2020

बाल महाभारत कथा

1. प्र०: महाभारत की कथा किसकी देन है?
2. प्र०: महर्षि वैशंपायन कौन थे?
3. प्र०: गंगा ने शांतनु से कहा "राजन ! क्या आप अपना वंश शूल गार।" तुम्हारे विचार से शांतनु ने गंगा की क्या वचन दिया होगा?
4. प्र०: व्यास जी ने महाभारत की कथा सबसे पहले कि कौन से कंठस्थ कराई थी?
5. प्र०: महाराजा शांतनु के बाद किसकी हस्तिनापुर की गद्दी मिली?
6. प्र०: पांडु की कितनी रानियाँ थी? उनके नाम लिखें।
7. प्र०: कौंस और पांडवों में युद्ध का क्या कारण था?

Class - VII
Subject - Maths
Assignment NO - 1
Chapter - 1
Integers.

DELTA Page No.
Date 2.04.20

①

The set of negative numbers along the set of whole numbers are known as integers. $\{ \dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots \}$

The numbers $-1, -2, -3, -4, \dots$ are called negative integers and the numbers $1, 2, 3, 4, \dots$ are called positive integers.

Properties of four operations.

Closure property - Addition.

$(m+n)$ is an integer.

$(-5) + 3 = -2$ is an integer.

Subtraction -

$(m-n)$ is an integer

$(-5) - 3 = -8$ is an integer.

Multiplication -

$(m \times n)$ is an integer.

$(-5) \times 3 = -15$ is an integer.

Division -

$(m \div n)$ may or may not be integer.

$15 \div 2 = 7.5$ which is not an

integer.

closure property does not hold for it.

Commutative property.

Addition - $(m+n) = (n+m)$

$(-6) + 2 = 2 + (-6)$

$-4 = -4$.

Subtraction - $(m-n) \neq (n-m)$

$(-6) - 2 \neq 2 - (-6)$

$-8 \neq 8$

It does not hold.

Division. $(m \div n) \neq (n \div m)$
 $-6 \div 2 \neq 2 \div (-6)$

It does not hold.

Multiplication. $(m \times n) = (n \times m)$
 $(-6) \times 2 = 2 \times (-6)$
 $-12 = -12$

Associative property -

Addition - $(m+n)+p = m+(n+p)$
 $= (3+5)+(-7) = 3+(5+(-7))$
 $= 8-7 = 3-2$
 $= 1 = 1$

Subtraction.

$(m-n)-p = m-(n-p)$
 $(3-5)-(-7) = 3-(5-(-7))$
 $-2+7 = 3-12$
 $5 \neq -9$

It does not hold.

Multiplication -

$(m \times n) \times p = m \times (n \times p)$
 $(3 \times 5) \times (-7) = 3 \times (5 \times (-7))$
 $15 \times (-7) = 3 \times (-35)$
 $-105 = -105$

Division -

$(m \div n) \div p \neq m \div (n \div p)$
 $(3 \div 5) \div (-7) \neq 3 \div (5 \div (-7))$
 It does not hold.

Property of zero. $m+0 = m$, 0 is the additive identity of the integer m

$m-0 = m$, $m \times 0 = 0$, $m \div 0 =$ Not possible.

Property of Inverse - $(+n) + (-n) = 0$
 $(7) + (-7) = 0$ So -7 is
 the additive inverse of $+7$.

Exercise

Q1. In a quiz, positive marks are given for correct answers and negative marks are given for incorrect answers. If Jack's scores in five successive rounds were 25, -5, -10, 15 and 10, what was his total at the end?

Q2. At Srinagar, temperature was -5°C on Monday and then it dropped by 2°C on Tuesday. What was the temperature of Srinagar on Tuesday? On Wednesday it rose by 4°C . What was the temperature on this day?

Q3. Mohan deposits ₹2000 in his bank account and withdraws ₹1,642 from it, the next day. If withdrawal of amount from the account is represented by a negative integer, then how will you represent the amount deposited? Find the balance in Mohan's accounts after the withdrawal?

Q4. In a magic square, each row, column and diagonal have the same sum. Check which of the following is a magic square.

5	-1	-4
-5	-2	7
0	3	-3

1	-10	0
-4	-3	-2
-6	4	-7

Q5. Verify $a - (-b) = a + b$ for the following values of a and b .

- i) $a = 21, b = 18$ ii) $a = 118, b = 125$;
 iii) $a = 75, b = 84$ iv) $a = 28, b = 11$

Q6. Use the Sign $>, <$ or $=$ in the box to make the statements true.

- a) $(-8) + (-4)$ $(-8) - (-4)$
 b) $(-3) + 7 - (+9)$ $15 - 8 + (-9)$
 c) $23 - 41 + 11$ $23 - 41 - 11$
 d) $39 + (-24) - (15)$ $36 + (-52) - (-36)$
 e) $(-231) + 79 + 51$ $(-399) + 159 + 81$

Q7. Find the additive inverse of the following integers.

- a) -5210 b) 352 c) -3562 d) 3012

Q8. Find the product of the following integers.

- a) $(-2) \times (-15)$ b) $(13) \times (-8)$
 c) $(-153) \times 110$ d) $(-1020) \times (-28) \times (-6)$

Q9. Fill in the blanks.

- a) $-428 + \underline{\hspace{2cm}} = 225 + \underline{\hspace{2cm}}$
 b) $[(-105) + \underline{\hspace{2cm}}] + \underline{\hspace{2cm}} = (-625) + \underline{\hspace{2cm}} + 321$
 c) $(-150) + \underline{\hspace{2cm}} = 0$
 d) $\underline{\hspace{2cm}} - (-1556) = 0$
 e) $(-63) \times [\underline{\hspace{2cm}} + \underline{\hspace{2cm}}] = \underline{\hspace{2cm}} \times 185 + \underline{\hspace{2cm}} \times \underline{\hspace{2cm}}$
 f) $(-258) \times \underline{\hspace{2cm}} = 0$
 g) $0 \div (-451) = \underline{\hspace{2cm}}$
 h) $(-825) \div \underline{\hspace{2cm}} = 1$

Q10. Simplify

a) $\left[\left\{ 490 - (50 \times (-3)) \right\} - 250 \right] \div 5$

b) $-150 + \left[\left\{ (-24) - 50 \div (-10 + 16 \times 2 - 17) \right\} + 120 \right]$

Integers.

- Q.1. Write down a pair of integers whose
- Sum is -7
 - difference is -10
 - Sum is 0 .

- Q.2. a) Write a pair of negative integers whose difference gives 8 .
- b) Write a negative integer and a positive integer whose sum is -5 .
- c) Write a negative integer and a positive integer whose difference is -3 .

- Q.3. In a quiz, team A scored $-40, 10, 0$ and team B scores $10, 0, -40$ in three successive rounds. Which team scored more? Can we say that we can add integers in any order?

- Q.4. Fill in the blanks to make the following statements true.

i) $(-5) + (-8) = (-8) + (\quad)$

ii) $-53 + \quad = -53$

iii) $17 + \quad = 0$

iv) $[13 + (-12)] + (\quad) = 13 + [(-12) + (-7)]$

v) $(-4) + [15 + (-3)] = [-4 + 15] + \quad$

- Q.5. Solve the following:

a) $(-352) + (-256)$

b) $148 + (-357)$

c) $(-2005) + 2183$

d) $(-254) \div (-206)$

e) $148 - (-362)$

f) $384 - (-225)$

g) $(-208) \times (-305)$

h) $(-50) \times 278$

i) $(-110) \times (-45)$

j) $(-3540) \div 26$

k) $(-7488) \div (-72)$

l) $3536 \div (-26)$

SUBJECT - MATHS CLASS - VII

TOPIC - INTEGERS

DATE 22.4.20

TIMMING - 90 MTS.

DATE OF SUBMISSION 23.4.20

		Second Number								
		-4	-3	-2	-1	0	1	2	3	4
First Number	+									
	-4									
	-3									
	-2									
	-1									
	0									
	1									
	2									
	3									
4										

Now from the above table answer the following :

- List pairs of integers whose sum is zero.
- What do you observe in the row corresponding to zero as the first number and in the column corresponding to zero as the second number?
- Is $(-4) + 3 = 3 + (-4)$? Is $3 + (-1) = (-1) + 3$?
- Is $(-2) + (-3)$ an integer?

6. Add :

(a) -480	(b) -1083
-238	-3974
<hr/>	<hr/>

7. Add :

(a) -408	(b) $+706$	(c) -107
$+291$	-394	$+63$
<hr/>	<hr/>	<hr/>
(d) -4032	(e) -2811	(f) $+6407$
$+3294$	$+1309$	-2919
<hr/>	<hr/>	<hr/>

8. Add the following pairs of integers:

- | | | |
|-----------------|--------------------|-------------------|
| (a) $-130, 25$ | (b) $-85, 139$ | (c) $498, -331$ |
| (d) $-437, -81$ | (e) $10000, -3761$ | (f) $5555, -9999$ |

9. Simplify the following:

- | | |
|---------------------------|--------------------------------|
| (a) $(-37) + (-21) + 48$ | (b) $(-535) + (132) + (794)$ |
| (c) $109 + 781 + (-1000)$ | (d) $(-331) + (-237) + (-115)$ |

10. Fill in the blanks:

- | | |
|----------------------------------|-------------------------------|
| (a) $(-13) + (-25) = \dots\dots$ | (b) $\dots\dots + (+7) = 12$ |
| (c) $9 + \dots\dots = -2$ | (d) $\dots\dots + (-8) = -12$ |
| (e) $-5 + \dots\dots = 0$ | (f) $\dots\dots + (-4) = 6$ |

Subject - Maths

Class - VII

18.4.20

DELTA Page No.

①

Assignment

Topic - Integers

Submission Date - 20.4.20 Time - 70 minutes

Q.1. Evaluate each of the following.

a) $(-30) \div 10$

Solu. $-30 \times \frac{1}{10} = \frac{-30}{10} = -3$

b) $(50) \div (-5)$

c) $(-36) \div (-9)$

d) $(-49) \div 49$

e) $13 \div [(-2) + (-1)]$

f) $0 \div (-12)$

g) $(-31) \div [(-30) \div (-1)]$

h) $[(-36) \div 12] \div 3$

i) $[(-6) + 5] \div [(-2) + 1]$

Q.2. Verify that

$a \div (b+c) \neq (a \div b) + (a \div c)$ for each of the following values of a, b and c.

a) $a = 12, b = -4, c = 2$

b) $a = (-10), b = 1, c = 1$

Q.3. Fill in the blanks:

(a) $369 \div \underline{\hspace{2cm}} = 369$

b) $(-75) \div \underline{\hspace{2cm}} = (-1)$

c) $(-206) \div \underline{\hspace{2cm}} = 1$

d) $(-87) \div \underline{\hspace{2cm}} = 87$

e) $\underline{\hspace{2cm}} \div 1 = -87$

f) $\underline{\hspace{2cm}} \div 48 = 1$

g) $\underline{\hspace{2cm}} \div (-4) = -3$

h) $20 \div \underline{\hspace{2cm}} = -2$

Q.4. Write five pairs of integers (a, b) such that $a \div b = -3$. One such pair is $(6, -2)$ because $6 \div (-2) = (-3)$.

Q.5. The temperature at noon was 10°C above zero. If it decreases at the rate of 2°C per hour until mid night, at what time would the temperature be 8°C below zero? what ~~should~~ be the temperature at mid night?

Q.6. In a class test $(+3)$ marks are given for every correct answer and (-2) marks are given for every incorrect answer and no marks for not attempting any question.

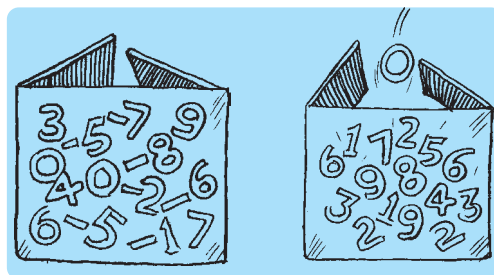
a) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly?

b) Mohini scores (-5) marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?

Integers

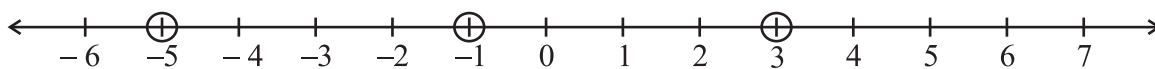
1.1 INTRODUCTION

We have learnt about whole numbers and integers in Class VI. We know that integers form a *bigger* collection of numbers which contains whole numbers and negative numbers. What other differences do you find between whole numbers and integers? In this chapter, we will study more about integers, their properties and operations. First of all, we will review and revise what we have done about integers in our previous class.



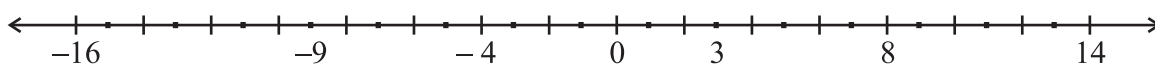
1.2 RECALL

We know how to represent integers on a number line. Some integers are marked on the number line given below.



Can you write these marked integers in ascending order? The ascending order of these numbers is $-5, -1, 3$. Why did we choose -5 as the smallest number?

Some points are marked with integers on the following number line. Write these integers in descending order.

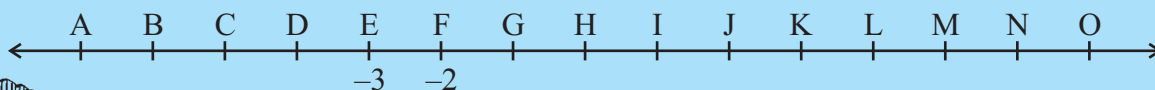


The descending order of these integers is $14, 8, 3, \dots$

The above number line has only a few integers filled. Write appropriate numbers at each dot.

TRY THESE

1. A number line representing integers is given below



-3 and -2 are marked by E and F respectively. Which integers are marked by B, D, H, J, M and O?

2. Arrange 7, -5, 4, 0 and -4 in ascending order and then mark them on a number line to check your answer.

We have done addition and subtraction of integers in our previous class. Read the following statements.

On a number line when we

- (i) add a positive integer, we move to the right.
- (ii) add a negative integer, we move to the left.
- (iii) subtract a positive integer, we move to the left.
- (iv) subtract a negative integer, we move to the right.

State whether the following statements are correct or incorrect. Correct those which are wrong:

- (i) When two positive integers are added we get a positive integer.
- (ii) When two negative integers are added we get a positive integer.
- (iii) When a positive integer and a negative integer are added, we always get a negative integer.
- (iv) Additive inverse of an integer 8 is (-8) and additive inverse of (-8) is 8.
- (v) For subtraction, we add the additive inverse of the integer that is being subtracted, to the other integer.
- (vi) $(-10) + 3 = 10 - 3$
- (vii) $8 + (-7) - (-4) = 8 + 7 - 4$

Compare your answers with the answers given below:

(i) Correct. For example:

$$(a) 56 + 73 = 129$$

$$(b) 113 + 82 = 195 \text{ etc.}$$

Construct five more examples in support of this statement.

(ii) Incorrect, since $(-6) + (-7) = -13$, which is not a positive integer. The correct statement is: When two negative integers are added we get a negative integer.

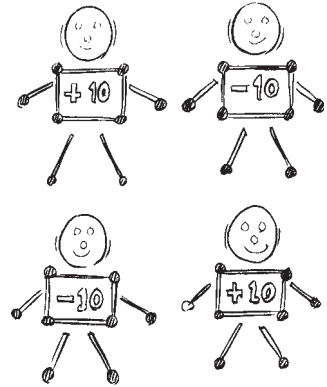
For example,

$$(a) (-56) + (-73) = -129 \quad (b) (-113) + (-82) = -195, \text{ etc.}$$

Construct five more examples on your own to verify this statement.

(iii) Incorrect, since $-9 + 16 = 7$, which is not a negative integer. The correct statement is :
When one positive and one negative integers are added, we take their difference and place the sign of the bigger integer. The bigger integer is decided by ignoring the signs of both the integers. For example:

- (a) $(-56) + (73) = 17$ (b) $(-113) + 82 = -31$
 (c) $16 + (-23) = -7$ (d) $125 + (-101) = 24$
 Construct five more examples for verifying this statement.



(iv) Correct. Some other examples of additive inverse are as given below:

Integer	Additive inverse
10	-10
-10	10
76	-76
-76	76

Thus, the additive inverse of any integer a is $-a$ and additive inverse of $(-a)$ is a .

(v) Correct. Subtraction is opposite of addition and therefore, we add the additive inverse of the integer that is being subtracted, to the other integer. For example:

- (a) $56 - 73 = 56 + \text{additive inverse of } 73 = 56 + (-73) = -17$
 (b) $56 - (-73) = 56 + \text{additive inverse of } (-73) = 56 + 73 = 129$
 (c) $(-79) - 45 = (-79) + (-45) = -124$
 (d) $(-100) - (-172) = -100 + 172 = 72$ etc.

Write atleast five such examples to verify this statement.

Thus, we find that for any two integers a and b ,

$$a - b = a + \text{additive inverse of } b = a + (-b)$$

and

$$a - (-b) = a + \text{additive inverse of } (-b) = a + b$$

- (vi) Incorrect, since $(-10) + 3 = -7$ and $10 - 3 = 7$
 therefore, $(-10) + 3 \neq 10 - 3$
 (vii) Incorrect, since, $8 + (-7) - (-4) = 8 + (-7) + 4 = 1 + 4 = 5$
 and $8 + 7 - 4 = 15 - 4 = 11$
 However, $8 + (-7) - (-4) = 8 - 7 + 4$

TRY THESE

We have done various patterns with numbers in our previous class.

Can you find a pattern for each of the following? If yes, complete them:

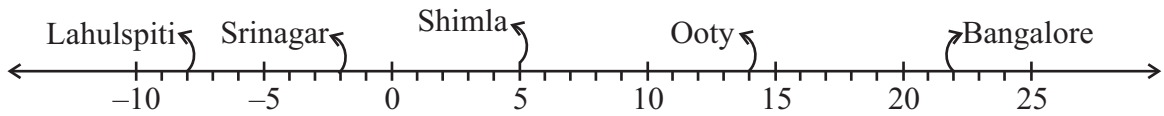
- (a) 7, 3, -1, -5, _____, _____, _____.
 (b) -2, -4, -6, -8, _____, _____, _____.
 (c) 15, 10, 5, 0, _____, _____, _____.
 (d) -11, -8, -5, -2, _____, _____, _____.

Make some more such patterns and ask your friends to complete them.

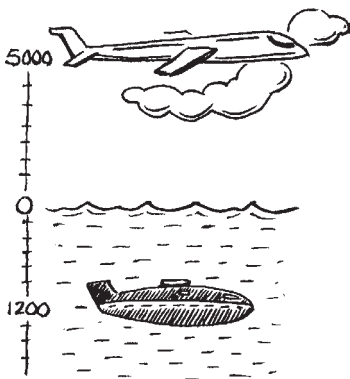


EXERCISE 1.1

1. Following number line shows the temperature in degree celsius ($^{\circ}\text{C}$) at different places on a particular day.



- Observe this number line and write the temperature of the places marked on it.
 - What is the temperature difference between the hottest and the coldest places among the above?
 - What is the temperature difference between Lahulspiti and Srinagar?
 - Can we say temperature of Srinagar and Shimla taken together is less than the temperature at Shimla? Is it also less than the temperature at Srinagar?
2. In a quiz, positive marks are given for correct answers and negative marks are given for incorrect answers. If Jack's scores in five successive rounds were 25, -5, -10, 15 and 10, what was his total at the end?



- At Srinagar temperature was -5°C on Monday and then it dropped by 2°C on Tuesday. What was the temperature of Srinagar on Tuesday? On Wednesday, it rose by 4°C . What was the temperature on this day?
- A plane is flying at the height of 5000 m above the sea level. At a particular point, it is exactly above a submarine floating 1200 m below the sea level. What is the vertical distance between them?
- Mohan deposits Rs 2,000 in his bank account and withdraws Rs 1,642 from it, the next day. If withdrawal of amount from the account is represented by a negative integer, then how will you represent the amount deposited? Find the balance in Mohan's account after the withdrawal.
- Rita goes 20 km towards east from a point A to the point B. From B, she moves 30 km towards west along the same road. If the distance towards east is represented by a positive integer then, how will you represent the distance travelled towards west? By which integer will you represent her final position from A?



7. In a magic square each row, column and diagonal have the same sum. Check which of the following is a magic square.

5	-1	-4
-5	-2	7
0	3	-3

(i)

1	-10	0
-4	-3	-2
-6	4	-7

(ii)

8. Verify $a - (-b) = a + b$ for the following values of a and b .

(i) $a = 21, b = 18$

(ii) $a = 118, b = 125$

(iii) $a = 75, b = 84$

(iv) $a = 28, b = 11$

9. Use the sign of $>$, $<$ or $=$ in the box to make the statements true.

(a) $(-8) + (-4)$ $(-8) - (-4)$

(b) $(-3) + 7 - (19)$ $15 - 8 + (-9)$

(c) $23 - 41 + 11$ $23 - 41 - 11$

(d) $39 + (-24) - (15)$ $36 + (-52) - (-36)$

(e) $-231 + 79 + 51$ $-399 + 159 + 81$

10. A water tank has steps inside it. A monkey is sitting on the topmost step (i.e., the first step). The water level is at the ninth step.

- (i) He jumps 3 steps down and then jumps back 2 steps up. In how many jumps will he reach the water level?
- (ii) After drinking water, he wants to go back. For this, he jumps 4 steps up and then jumps back 2 steps down in every move. In how many jumps will he reach back the top step?
- (iii) If the number of steps moved down is represented by negative integers and the number of steps moved up by positive integers, represent his moves in part (i) and (ii) by completing the following; (a) $-3 + 2 - \dots = -8$
(b) $4 - 2 + \dots = 8$. In (a) the sum (-8) represents going down by eight steps. So, what will the sum 8 in (b) represent?



1.3 PROPERTIES OF ADDITION AND SUBTRACTION OF INTEGERS

1.3.1 Closure under Addition

We have learnt that sum of two whole numbers is again a whole number. For example, $17 + 24 = 41$ which is again a whole number. We know that, this property is known as the closure property for addition of the whole numbers.

1.3.3 Commutative Property

We know that $3 + 5 = 5 + 3 = 8$, that is, the whole numbers can be added in any order. In other words, addition is commutative for whole numbers.

Can we say the same for integers also?

We have $5 + (-6) = -1$ and $(-6) + 5 = -1$

So, $5 + (-6) = (-6) + 5$

Are the following equal?

- (i) $(-8) + (-9)$ and $(-9) + (-8)$
- (ii) $(-23) + 32$ and $32 + (-23)$
- (iii) $(-45) + 0$ and $0 + (-45)$

Try this with five other pairs of integers. Do you find any pair of integers for which the sums are different when the order is changed? Certainly not. Thus, we conclude that *addition is commutative for integers*.

In general, for any two integers a and b , we can say

$$a + b = b + a$$

- We know that subtraction is not commutative for whole numbers. Is it commutative for integers?

Consider the integers 5 and (-3) .

Is $5 - (-3)$ the same as $(-3) - 5$? No, because $5 - (-3) = 5 + 3 = 8$, and $(-3) - 5 = -3 - 5 = -8$.

Take at least five different pairs of integers and check this.

We conclude that subtraction is not commutative for integers.

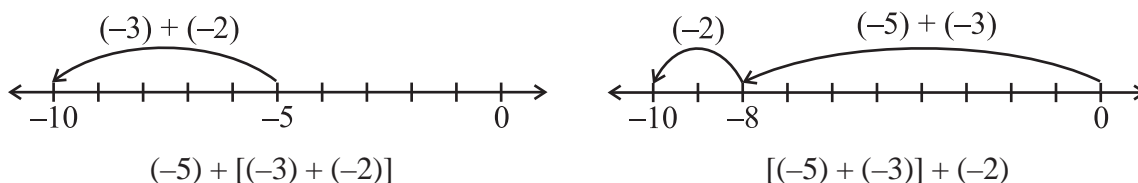
1.3.4 Associative Property

Observe the following examples:

Consider the integers -3 , -2 and -5 .

Look at $(-5) + [(-3) + (-2)]$ and $[(-5) + (-3)] + (-2)$.

In the first sum (-3) and (-2) are grouped together and in the second (-5) and (-3) are grouped together. We will check whether we get different results.



In both the cases, we get -10 .

i.e., $(-5) + [(-3) + (-2)] = [(-5) + (-2)] + (-3)$

Similarly consider -3 , 1 and -7 .

$$(-3) + [1 + (-7)] = -3 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$[(-3) + 1] + (-7) = -2 + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

Is $(-3) + [1 + (-7)]$ same as $[(-3) + 1] + (-7)$?

Take five more such examples. You will not find any example for which the sums are different. This shows that *addition is associative for integers*.

In general for any integers a , b and c , we can say

$$a + (b + c) = (a + b) + c$$

1.3.5 Additive Identity

When we add zero to any whole number, we get the same whole number. Zero is an additive identity for whole numbers. Is it an additive identity again for integers also?

Observe the following and fill in the blanks:

(i) $(-8) + 0 = -8$

(ii) $0 + (-8) = -8$

(iii) $(-23) + 0 = \underline{\hspace{2cm}}$

(iv) $0 + (-37) = -37$

(v) $0 + (-59) = \underline{\hspace{2cm}}$

(vi) $0 + \underline{\hspace{2cm}} = -43$

(vii) $-61 + \underline{\hspace{2cm}} = -61$

(viii) $\underline{\hspace{2cm}} + 0 = \underline{\hspace{2cm}}$

The above examples show that zero is an additive identity for integers.

You can verify it by adding zero to any other five integers.

In general, for any integer a

$$a + 0 = a = 0 + a$$

TRY THESE

1. Write a pair of integers whose sum gives

(a) a negative integer

(b) zero

(c) an integer smaller than both the integers.

(d) an integer smaller than only one of the integers.

(e) an integer greater than both the integers.

2. Write a pair of integers whose difference gives

(a) a negative integer.

(b) zero.

(c) an integer smaller than both the integers.

(d) an integer greater than only one of the integers.

(e) an integer greater than both the integers.



EXAMPLE 1 Write down a pair of integers whose

- (a) sum is -3 (b) difference is -5
 (c) difference is 2 (d) sum is 0

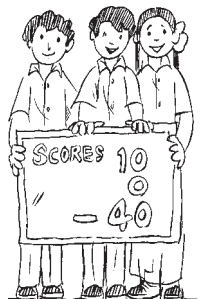
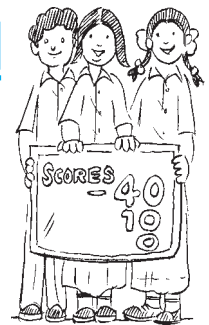
SOLUTION (a) $(-1) + (-2) = -3$ or $(-5) + 2 = -3$
 (b) $(-9) - (-4) = -5$ or $(-2) - 3 = -5$
 (c) $(-7) - (-9) = 2$ or $1 - (-1) = 2$
 (d) $(-10) + 10 = 0$ or $5 + (-5) = 0$

Can you write more pairs in these examples?



EXERCISE 1.2

- Write down a pair of integers whose:
 - sum is -7
 - difference is -10
 - sum is 0
- Write a pair of negative integers whose difference gives 8 .
 - Write a negative integer and a positive integer whose sum is -5 .
 - Write a negative integer and a positive integer whose difference is -3 .
- In a quiz, team A scored -40 , 10 , 0 and team B scored 10 , 0 , -40 in three successive rounds. Which team scored more? Can we say that we can add integers in any order?
- Fill in the blanks to make the following statements true:
 - $(-5) + (\dots) = (-8) + (\dots)$
 - $-53 + \dots = -53$
 - $17 + \dots = 0$
 - $[13 + (-12)] + (\dots) = \dots + [(-12) + (-7)]$
 - $(-4) + [\dots + (-3)] = [\dots + 15] + \dots$



1.4 MULTIPLICATION OF INTEGERS

We can add and subtract integers. Let us now learn how to multiply integers.

1.4.1 Multiplication of a Positive and a Negative Integer

We know that multiplication of whole numbers is repeated addition. For example,

$$5 + 5 + 5 = 3 \times 5 = 15$$

Can you represent addition of integers in the same way?

TRY THESE

Find:

$4 \times (-8),$

$8 \times (-2),$

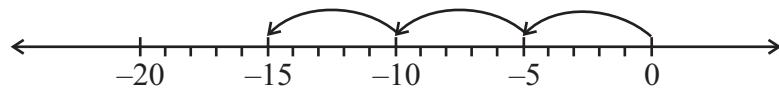
$3 \times (-7),$

$10 \times (-1)$

using number line.

Therefore,

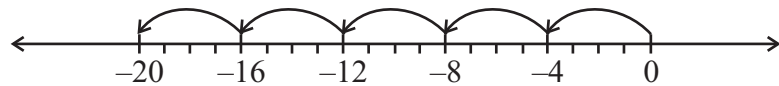
Similarly $(-4) + (-4) + (-4) + (-4) + (-4) = 5 \times (-4) = -20$

We have from the following number line, $(-5) + (-5) + (-5) = -15$ 

But we can also write

$(-5) + (-5) + (-5) = 3 \times (-5)$

$3 \times (-5) = -15$



And $(-3) + (-3) + (-3) + (-3) = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Also, $(-7) + (-7) + (-7) = \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

Let us see how to find the product of a positive integer and a negative integer without using number line.

Let us find $3 \times (-5)$ in a different way. First find 3×5 and then put minus sign (-) before the product obtained. You get -15 . That is we find $-(3 \times 5)$ to get -15 .

Similarly, $5 \times (-4) = -(5 \times 4) = -20$.

Find in a similar way,

$4 \times (-8) = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \quad 3 \times (-7) = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

$6 \times (-5) = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \quad 2 \times (-9) = \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$

Using this method we thus have,

$10 \times (-43) = \underline{\hspace{1cm}} - (10 \times 43) = -430$

Till now we multiplied integers as (positive integer) \times (negative integer).Let us now multiply them as (negative integer) \times (positive integer).We first find -3×5 .

To find this, observe the following pattern:

We have,

$3 \times 5 = 15$

$2 \times 5 = 10 = 15 - 5$

$1 \times 5 = 5 = 10 - 5$

$0 \times 5 = 0 = 5 - 5$

So,

$-1 \times 5 = 0 - 5 = -5$

**TRY THESE**

Find:

(i) $6 \times (-19)$

(ii) $12 \times (-32)$

(iii) $7 \times (-22)$

$$-2 \times 5 = -5 - 5 = -10$$

$$-3 \times 5 = -10 - 5 = -15$$

We already have

$$3 \times (-5) = -15$$

So we get

$$(-3) \times 5 = -15 = 3 \times (-5)$$

Using such patterns, we also get $(-5) \times 4 = -20 = 5 \times (-4)$

Using patterns, find $(-4) \times 8$, $(-3) \times 7$, $(-6) \times 5$ and $(-2) \times 9$

Check whether, $(-4) \times 8 = 4 \times (-8)$, $(-3) \times 7 = 3 \times (-7)$, $(-6) \times 5 = 6 \times (-5)$

and

$$(-2) \times 9 = 2 \times (-9)$$

Using this we get,

$$(-33) \times 5 = 33 \times (-5) = -165$$

We thus find that while *multiplying a positive integer and a negative integer*, we multiply them as whole numbers and put a minus sign (-) before the product. We thus get a negative integer.

TRY THESE

- Find: (a) $15 \times (-16)$ (b) $21 \times (-32)$
(c) $(-42) \times 12$ (d) -55×15
- Check if (a) $25 \times (-21) = (-25) \times 21$ (b) $(-23) \times 20 = 23 \times (-20)$

Write five more such examples.



In general, for any two positive integers a and b we can say

$$a \times (-b) = (-a) \times b = -(a \times b)$$

1.4.2 Multiplication of two Negative Integers

Can you find the product $(-3) \times (-2)$?

Observe the following:

$$-3 \times 4 = -12$$

$$-3 \times 3 = -9 = -12 - (-3)$$

$$-3 \times 2 = -6 = -9 - (-3)$$

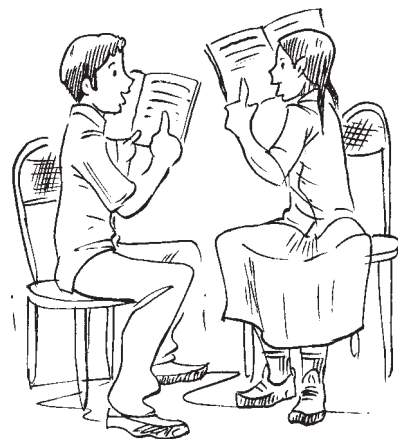
$$-3 \times 1 = -3 = -6 - (-3)$$

$$-3 \times 0 = 0 = -3 - (-3)$$

$$-3 \times (-1) = 0 - (-3) = 0 + 3 = 3$$

$$-3 \times (-2) = 3 - (-3) = 3 + 3 = 6$$

Do you see any pattern? Observe how the products change.



Based on this observation, complete the following:

$$-3 \times -3 = \underline{\quad\quad} \quad -3 \times -4 = \underline{\quad\quad}$$

Now observe these products and fill in the blanks:

$$-4 \times 4 = -16$$

$$-4 \times 3 = -12 = -16 + 4$$

$$-4 \times 2 = \underline{\quad\quad} = -12 + 4$$

$$-4 \times 1 = \underline{\quad\quad}$$

$$-4 \times 0 = \underline{\quad\quad}$$

$$-4 \times (-1) = \underline{\quad\quad}$$

$$-4 \times (-2) = \underline{\quad\quad}$$

$$-4 \times (-3) = \underline{\quad\quad}$$

TRY THESE

- (i) Starting from $(-5) \times 4$, find $(-5) \times (-6)$
- (ii) Starting from $(-6) \times 3$, find $(-6) \times (-7)$

From these patterns we observe that,

$$(-3) \times (-1) = 3 = 3 \times 1$$

$$(-3) \times (-2) = 6 = 3 \times 2$$

$$(-3) \times (-3) = 9 = 3 \times 3$$

and $(-4) \times (-1) = 4 = 4 \times 1$

So, $(-4) \times (-2) = 4 \times 2 = \underline{\quad\quad}$

$$(-4) \times (-3) = \underline{\quad\quad} = \underline{\quad\quad}$$

So observing these products we can say that the *product of two negative integers is a positive integer. We multiply the two negative integers as whole numbers and put the positive sign before the product.*

Thus, we have $(-10) \times (-12) = 120$

Similarly $(-15) \times (-6) = 90$

In general, for any two positive integers a and b ,

$$(-a) \times (-b) = a \times b$$

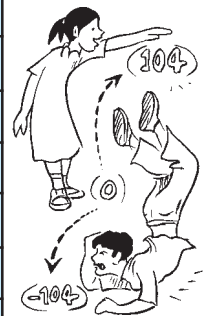
TRY THESE

Find: $(-31) \times (-100)$, $(-25) \times (-72)$, $(-83) \times (-28)$

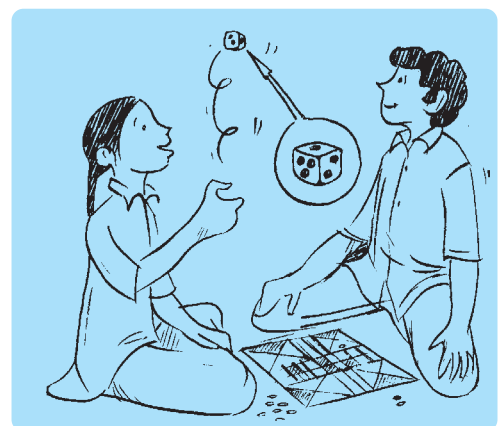
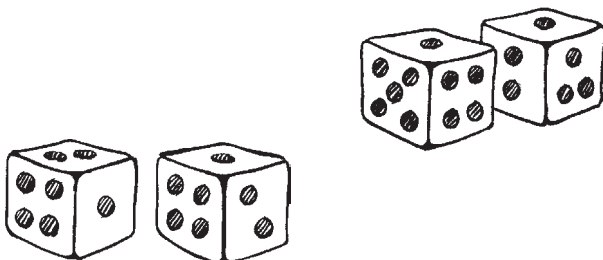
Game 1

- (i) Take a board marked from -104 to 104 as shown in the figure.
- (ii) Take a bag containing two blue and two red dice. Number of dots on the blue dice indicate positive integers and number of dots on the red dice indicate negative integers.
- (iii) Every player will place his/her counter at zero.
- (iv) Each player will take out two dice at a time from the bag and throw them.

104	103	102	101	100	99	98	97	96	95	94
83	84	85	86	87	88	89	90	91	92	93
82	81	80	79	78	77	76	75	74	73	72
61	62	63	64	65	66	67	68	69	70	71
60	59	58	57	56	55	54	53	52	51	50
39	40	41	42	43	44	45	46	47	48	49
38	37	36	35	34	33	32	31	30	29	28
17	18	19	20	21	22	23	24	25	26	27
16	15	14	13	12	11	10	9	8	7	6
-5	-4	-3	-2	-1	0	1	2	3	4	5
-6	-7	-8	-9	-10	-11	-12	-13	-14	-15	-16
-27	-26	-25	-24	-23	-22	-21	-20	-19	-18	-17
-28	-29	-30	-31	-32	-33	-34	-35	-36	-37	-38
-49	-48	-47	-46	-45	-44	-43	-42	-41	-40	-39
-50	-51	-52	-53	-54	-55	-56	-57	-58	-59	-60
-71	-70	-69	-68	-67	-66	-65	-64	-63	-62	-61
-72	-73	-74	-75	-76	-77	-78	-79	-80	-81	-82
-93	-92	-91	-90	-89	-88	-87	-86	-85	-84	-83
-94	-95	-96	-97	-98	-99	-100	-101	-102	-103	-104



- (v) After every throw, the player has to multiply the numbers marked on the dice.
- (vi) If the product is a positive integer then the player will move his counter towards 104; if the product is a negative integer then the player will move his counter towards -104.
- (vii) The player who reaches 104 first is the winner.



1.4.3 Product of three or more Negative Integers

Euler in his book *Ankündigung zur Algebra* (1770), was one of the first mathematicians to attempt to prove

$$(-1) \times (-1) = 1$$

We observed that the product of two negative integers is a positive integer. What will be the product of three negative integers? Four negative integers? Let us observe the following examples:

$$(a) \quad (-4) \times (-3) = 12$$

$$(b) \quad (-4) \times (-3) \times (-2) = [(-4) \times (-3)] \times (-2) = 12 \times (-2) = -24$$

$$(c) \quad (-4) \times (-3) \times (-2) \times (-1) = [(-4) \times (-3) \times (-2)] \times (-1) = (-24) \times (-1)$$

$$(d) \quad (-5) \times [(-4) \times (-3) \times (-2) \times (-1)] = (-5) \times 24 = -120$$

From the above products we observe that

- the product of two negative integers is a positive integer;
- the product of three negative integers is a negative integer.
- product of four negative integers is a positive integer.

What is the product of five negative integers in (d)?

So what will be the product of six negative integers?

We further see that in (a) and (c) above, the number of negative integers that are multiplied are even [two and four respectively] and the product obtained in (a) and (c) are positive integers. The number of negative integers that are multiplied in (b) and (d) are odd and the products obtained in (b) and (d) are negative integers.

We find that *if the number of negative integers in a product is even, then the product is a positive integer; if the number of negative integers in a product is odd, then the product is a negative integer.*

Justify it by taking five more examples of each kind.

A Special Case

Consider the following statements and the resultant products:

$$(-1) \times (-1) = +1$$

$$(-1) \times (-1) \times (-1) = -1$$

$$(-1) \times (-1) \times (-1) \times (-1) = +1$$

$$(-1) \times (-1) \times (-1) \times (-1) \times (-1) = -1$$

This means that if the integer (-1) is multiplied even number of times, the product is $+1$ and if the integer (-1) is multiplied odd number of times, the product is -1 . You can check this by making pairs of (-1) in the statement. This is useful in working out products of integers.

THINK, DISCUSS AND WRITE



- The product $(-9) \times (-5) \times (-6) \times (-3)$ is positive whereas the product $(-9) \times (5) \times 6 \times (-3)$ is negative. Why?
- What will be the sign of the product if we multiply together:
 - 8 negative integers and 3 positive integers?
 - 5 negative integers and 4 positive integers?

- (c) (-1) , twelve times?
- (d) (-1) , $2m$ times, m is a natural number?

1.5 PROPERTIES OF MULTIPLICATION OF INTEGERS

1.5.1 Closure under Multiplication

1. Observe the following table and complete it:

Statement	Inference
$(-20) \times (-5) = 100$	Product is an integer
$(-15) \times 17 = -255$	Product is an integer
$(-30) \times 12 = \underline{\hspace{2cm}}$	
$(-15) \times (-23) = \underline{\hspace{2cm}}$	
$(-14) \times (-13) = \underline{\hspace{2cm}}$	
$12 \times (-30) = \underline{\hspace{2cm}}$	

What do you observe? Can you find a pair of integers whose product is not an integer? No. This gives us an idea that the product of two integers is again an integer. So we can say that *integers are closed under multiplication*.

In general,

$$a \times b \text{ is an integer, for all integers } a \text{ and } b.$$

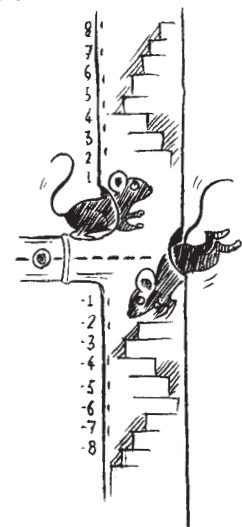
Find the product of five more pairs of integers and verify the above statement.

1.5.2 Commutativity of Multiplication

We know that multiplication is commutative for whole numbers. Can we say, multiplication is also commutative for integers?

Observe the following table and complete it:

Statement 1	Statement 2	Inference
$3 \times (-4) = -12$	$(-4) \times 3 = -12$	$3 \times (-4) = (-4) \times 3$
$(-30) \times 12 = \underline{\hspace{2cm}}$	$12 \times (-30) = \underline{\hspace{2cm}}$	
$(-15) \times (-10) = 150$	$(-10) \times (-15) = 150$	
$(-35) \times (-12) = \underline{\hspace{2cm}}$	$(-12) \times (-35) = \underline{\hspace{2cm}}$	
$(-17) \times 0 = \underline{\hspace{2cm}}$		
$\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$	$(-1) \times (-15) = \underline{\hspace{2cm}}$	



What are your observations? The above examples suggest *multiplication is commutative for integers*. Write five more such examples and verify.

In general, for any two integers a and b ,

$$a \times b = b \times a$$

1.5.3 Multiplication by Zero

We know that any whole number when multiplied by zero gives zero. Observe the following products of negative integers and zero. These are obtained from the patterns done earlier.

$$(-3) \times 0 = 0$$

$$0 \times (-4) = 0$$

$$-5 \times 0 = \underline{\hspace{2cm}}$$

$$0 \times (-6) = \underline{\hspace{2cm}}$$

This shows that the product of a negative integer and zero is zero.

In general, for any integer a ,

$$a \times 0 = 0 \times a = 0$$

1.5.4 Multiplicative Identity

We know that 1 is the multiplicative identity for whole numbers.

Check that 1 is the multiplicative identity for integers as well. Observe the following products of integers with 1.

$$(-3) \times 1 = -3$$

$$1 \times 5 = 5$$

$$(-4) \times 1 = \underline{\hspace{2cm}}$$

$$1 \times 8 = \underline{\hspace{2cm}}$$

$$1 \times (-5) = \underline{\hspace{2cm}}$$

$$3 \times 1 = \underline{\hspace{2cm}}$$

$$1 \times (-6) = \underline{\hspace{2cm}}$$

$$7 \times 1 = \underline{\hspace{2cm}}$$

This shows that 1 is the multiplicative identity for integers also.

In general, for any integer a we have,

$$a \times 1 = 1 \times a = a$$

What happens when we multiply any integer with -1 ? Complete the following:

$$(-3) \times (-1) = 3$$

$$3 \times (-1) = -3$$

$$(-6) \times (-1) = \underline{\hspace{2cm}}$$

$$(-1) \times 13 = \underline{\hspace{2cm}}$$

$$(-1) \times (-25) = \underline{\hspace{2cm}}$$

$$18 \times (-1) = \underline{\hspace{2cm}}$$

0 is the additive identity whereas 1 is the multiplicative identity for integers. We get additive inverse of an integer a when we multiply (-1) to a , i.e. $a \times (-1) = (-1) \times a = -a$

What do you observe?

Can we say -1 is a multiplicative identity of integers? No.

1.5.5 Associativity for Multiplication

Consider -3 , -2 and 5 .

Look at $[(-3) \times (-2)] \times 5$ and $(-3) \times [(-2) \times 5]$.

In the first case (-3) and (-2) are grouped together and in the second (-2) and 5 are grouped together.

We see that $[(-3) \times (-2)] \times 5 = 6 \times 5 = 30$

and $(-3) \times [(-2) \times 5] = (-3) \times (-10) = 30$

So, we get the same answer in both the cases.

Thus, $[(-3) \times (-2)] \times 5 = (-3) \times [(-2) \times 5]$

Look at this and complete the products:

$$[(7) \times (-6)] \times 4 = \underline{\hspace{2cm}} \times 4 = \underline{\hspace{2cm}}$$

$$7 \times [(-6) \times 4] = 7 \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$$

$$\text{Is } [7 \times (-6)] \times (-4) = 7 \times [(-6) \times (-4)]?$$

Does the grouping of integers affect the product of integers? No.

In general, for any three integers a , b and c

$$(a \times b) \times c = a \times (b \times c)$$

Take any five values for a , b and c each and verify this property.

Thus, like whole numbers, *the product of three integers does not depend upon the grouping of integers and this is called the associative property for multiplication of integers.*

1.5.6 Distributive Property

We know

$$16 \times (10 + 2) = (16 \times 10) + (16 \times 2) \quad [\text{Distributivity of multiplication over addition}]$$

Let us check if this is true for integers also.

Observe the following:

$$(a) \quad (-2) \times (3 + 5) = -2 \times 8 = -16$$

$$\text{and} \quad [(-2) \times 3] + [(-2) \times 5] = (-6) + (-10) = -16$$

$$\text{So,} \quad (-2) \times (3 + 5) = [(-2) \times 3] + [(-2) \times 5]$$

$$(b) \quad (-4) \times [(-2) + 7] = (-4) \times 5 = -20$$

$$\text{and} \quad [(-4) \times (-2)] + [(-4) \times 7] = 8 + (-28) = -20$$

$$\text{So,} \quad (-4) \times [(-2) + 7] = [(-4) \times (-2)] + [(-4) \times 7]$$

$$(c) \quad (-8) \times [(-2) + (-1)] = (-8) \times (-3) = 24$$

$$\text{and} \quad [(-8) \times (-2)] + [(-8) \times (-1)] = 16 + 8 = 24$$

$$\text{So,} \quad (-8) \times [(-2) + (-1)] = [(-8) \times (-2)] + [(-8) \times (-1)]$$



Can we say that the distributivity of multiplication over addition is true for integers also? Yes.

In general, for any integers a , b and c ,

$$a \times (b + c) = a \times b + a \times c$$

Take at least five different values for each of a , b and c and verify the above Distributive property.

TRY THESE



- (i) Is $10 \times [(6 + (-2))] = 10 \times 6 + 10 \times (-2)$?
 (ii) Is $(-15) \times [(-7) + (-1)] = (-15) \times (-7) + (-15) \times (-1)$?

Now consider the following:

Can we say $4 \times (3 - 8) = 4 \times 3 - 4 \times 8$?

Let us check:

$$4 \times (3 - 8) = 4 \times (-5) = -20$$

$$4 \times 3 - 4 \times 8 = 12 - 32 = -20$$

So, $4 \times (3 - 8) = 4 \times 3 - 4 \times 8$.

Look at the following:

$$(-5) \times [(-4) - (-6)] = (-5) \times 2 = -10$$

$$[(-5) \times (-4)] - [(-5) \times (-6)] = 20 - 30 = -10$$

So, $(-5) \times [(-4) - (-6)] = [(-5) \times (-4)] - [(-5) \times (-6)]$

Check this for $(-9) \times [10 - (-3)]$ and $[(-9) \times 10] - [(-9) \times (-3)]$

You will find that these are also equal.

In general, for any three integers a , b and c ,

$$a \times (b - c) = a \times b - a \times c$$

Take at least five different values for each of a , b and c and verify this property.

TRY THESE



- (i) Is $10 \times (6 - (-2)) = 10 \times 6 - 10 \times (-2)$?
 (ii) Is $(-15) \times [(-7) - (-1)] = (-15) \times (-7) - (-15) \times (-1)$?

1.5.7 Making Multiplication Easier

Consider the following:

- (i) We can find $(-25) \times 37 \times 4$ as
 $[(-25) \times 37] \times 4 = (-925) \times 4 = -3700$

Or, we can do it this way,

$$(-25) \times 37 \times 4 = (-25) \times 4 \times 37 = [(-25) \times 4] \times 37 = (-100) \times 37 = -3700$$

Which is the easier way?

Obviously the second way is easier because multiplication of (-25) and 4 gives -100 which is easier to multiply with 37 . Note that the second way involves commutativity and associativity of integers.

So, we find that the commutativity, associativity and distributivity of integers help to make our calculations simpler. Let us further see how calculations can be made easier using these properties.

- (ii) Find 16×12

16×12 can be written as $16 \times (10 + 2)$.

$$16 \times 12 = 16 \times (10 + 2) = 16 \times 10 + 16 \times 2 = 160 + 32 = 192$$

- (iii) $(-23) \times 48 = (-23) \times [50 - 2] = (-23) \times 50 - (-23) \times 2 = (-1150) - (-46)$
 $= -1104$

- (iv) $(-35) \times (-98) = (-35) \times [(-100) + 2] = (-35) \times (-100) + (-35) \times 2$
 $= 3500 + (-70) = 3430$

- (v) $52 \times (-8) + (-52) \times 2$

$(-52) \times 2$ can also be written as $52 \times (-2)$.

$$\begin{aligned} \text{Therefore, } 52 \times (-8) + (-52) \times 2 &= 52 \times (-8) + 52 \times (-2) \\ &= 52 \times [(-8) + (-2)] = 52 \times [(-10)] = -520 \end{aligned}$$

TRY THESE

Find $(-49) \times 18$; $(-25) \times (-31)$; $70 \times (-19) + (-1) \times 70$ using distributive property.



EXAMPLE 2 Find each of the following products:

- (i) $(-18) \times (-10) \times 9$ (ii) $(-20) \times (-2) \times (-5) \times 7$
 (iii) $(-1) \times (-5) \times (-4) \times (-6)$

SOLUTION

- (i) $(-18) \times (-10) \times 9 = [(-18) \times (-10)] \times 9 = 180 \times 9 = 1620$
 (ii) $(-20) \times (-2) \times (-5) \times 7 = -20 \times (-2 \times -5) \times 7 = [-20 \times 10] \times 7 = -1400$
 (iii) $(-1) \times (-5) \times (-4) \times (-6) = [(-1) \times (-5)] \times [(-4) \times (-6)] = 5 \times 24 = 120$

EXAMPLE 3 Verify $(-30) \times [13 + (-3)] = [(-30) \times 13] + [(-30) \times (-3)]$

SOLUTION $(-30) \times [13 + (-3)] = (-30) \times 10 = -300$

$$[(-30) \times 13] + [(-30) \times (-3)] = -390 + 90 = -300$$

$$\text{So, } (-30) \times [13 + (-3)] = [(-30) \times 13] + [(-30) \times (-3)]$$

- EXAMPLE 4** In a class test containing 15 questions, 4 marks are given for every correct answer and (-2) marks are given for every incorrect answer. (i) Gurpreet attempts all questions but only 9 of her answers are correct. What is her total score? (ii) One of her friends gets only 5 answers correct. What will be her score?

SOLUTION

- (i) Marks given for one correct answer = 4

$$\text{So, marks given for 9 correct answers} = 4 \times 9 = 36$$

$$\text{Marks given for one incorrect answer} = -2$$

$$\text{So, marks given for } 6 = (15 - 9) \text{ incorrect answers} = (-2) \times 6 = -12$$

$$\text{Therefore, Gurpreet's total score} = 36 + (-12) = 24$$

- (ii) Marks given for one correct answer = 4

$$\text{So, marks given for 5 correct answers} = 4 \times 5 = 20$$

$$\text{Marks given for one incorrect answer} = (-2)$$

$$\text{So, marks given for } 10 = (15 - 5) \text{ incorrect answers} = (-2) \times 10 = -20$$

$$\text{Therefore, her friend's total score} = 20 + (-20) = 0$$

- EXAMPLE 5** Suppose we represent the distance above the ground by a positive integer and that below the ground by a negative integer, then answer the following:

- (i) An elevator descends into a mine shaft at the rate of 5 metre per minute. What will be its position after one hour?
 (ii) If it begins to descend from 15 m above the ground, what will be its position after 45 minutes?

SOLUTION

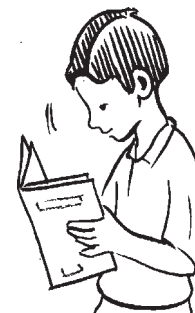
- (i) Since the elevator is going down, so the distance covered by it will be represented by a negative integer.

$$\text{Change in position of the elevator in one minute} = -5 \text{ m}$$

$$\text{Position of the elevator after 60 minutes} = (-5) \times 60 = -300 \text{ m, i.e., 300 m below ground level.}$$

- (ii) Change in position of the elevator in 45 minutes = $(-5) \times 45 = -225$ m, i.e., 225 m below ground level.

$$\text{So, the final position of the elevator} = -225 + 15 = -210 \text{ m, i.e., 210 m below ground level.}$$

EXERCISE 1.3

1. Find each of the following products:

- | | |
|---|--|
| (a) $3 \times (-1)$ | (b) $(-1) \times 225$ |
| (c) $(-21) \times (-30)$ | (d) $(-316) \times (-1)$ |
| (e) $(-15) \times 0 \times (-18)$ | (f) $(-12) \times (-11) \times (10)$ |
| (g) $9 \times (-3) \times (-6)$ | (h) $(-18) \times (-5) \times (-4)$ |
| (i) $(-1) \times (-2) \times (-3) \times 4$ | (j) $(-3) \times (-6) \times (-2) \times (-1)$ |

2. Verify the following:

- (a) $18 \times [7 + (-3)] = [18 \times 7] + [18 \times (-3)]$
(b) $(-21) \times [(-4) + (-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$

3. (i) For any integer a , what is $(-1) \times a$ equal to?

(ii) Determine the integer whose product with (-1) is

- (a) -22 (b) 37 (c) 0

4. Starting from $(-1) \times 5$, write various products showing some pattern to show $(-1) \times (-1) = 1$.

5. Find the product, using suitable properties:

- | | |
|--|---------------------------------|
| (a) $26 \times (-48) + (-48) \times (-36)$ | (b) $8 \times 53 \times (-125)$ |
| (c) $15 \times (-25) \times (-4) \times (-10)$ | (d) $(-41) \times 102$ |
| (e) $625 \times (-35) + (-625) \times 65$ | (f) $7 \times (50 - 2)$ |
| (g) $(-17) \times (-29)$ | (h) $(-57) \times (-19) + 57$ |

6. A certain freezing process requires that room temperature be lowered from 40°C at the rate of 5°C every hour. What will be the room temperature 10 hours after the process begins?

7. In a class test containing 10 questions, 5 marks are awarded for every correct answer and (-2) marks are awarded for every incorrect answer and 0 for questions not attempted.

- (i) Mohan gets four correct and six incorrect answers. What is his score?
(ii) Reshma gets five correct answers and five incorrect answers, what is her score?
(iii) Heena gets two correct and five incorrect answers out of seven questions she attempts. What is her score?

8. A cement company earns a profit of Rs 8 per bag of white cement sold and a loss of Rs 5 per bag of grey cement sold.

- (a) The company sells 3,000 bags of white cement and 5,000 bags of grey cement in a month. What is its profit or loss?

- (b) What is the number of white cement bags it must sell to have neither profit nor loss, if the number of grey bags sold is 6,400 bags.
9. Replace the blank with an integer to make it a true statement.
- (a) $(-3) \times \underline{\quad} = 27$ (b) $5 \times \underline{\quad} = -35$
- (c) $\underline{\quad} \times (-8) = -56$ (d) $\underline{\quad} \times (-12) = 132$

1.6 DIVISION OF INTEGERS

We know that division is the inverse operation of multiplication. Let us see an example for whole numbers.

Since $3 \times 5 = 15$

So $15 \div 5 = 3$ and $15 \div 3 = 5$

Similarly, $4 \times 3 = 12$ gives $12 \div 4 = 3$ and $12 \div 3 = 4$

We can say for each multiplication statement of whole numbers there are two division statements.

Can you write multiplication statement and its corresponding division statements for integers?

- Observe the following and complete it.

Multiplication Statement	Corresponding Division Statements
$2 \times (-6) = (-12)$	$(-12) \div (-6) = 2$, $(-12) \div 2 = (-6)$
$(-4) \times 5 = (-20)$	$(-20) \div (5) = (-4)$, $(-20) \div (-4) = 5$
$(-8) \times (-9) = 72$	$72 \div \underline{\quad} = \underline{\quad}$, $72 \div \underline{\quad} = \underline{\quad}$
$(-3) \times (-7) = \underline{\quad}$	$\underline{\quad} \div (-3) = \underline{\quad}$, $\underline{\quad}$
$(-8) \times 4 = \underline{\quad}$	$\underline{\quad}$, $\underline{\quad}$
$5 \times (-9) = \underline{\quad}$	$\underline{\quad}$, $\underline{\quad}$
$(-10) \times (-5) = \underline{\quad}$	$\underline{\quad}$, $\underline{\quad}$

From the above we observe that :

$(-12) \div 2 = (-6)$

$(-20) \div (5) = (-4)$

$(-32) \div 4 = -8$

$(-45) \div 5 = -9$

TRY THESE

Find:

(a) $(-100) \div 5$ (b) $(-81) \div 9$

(c) $(-75) \div 5$ (d) $(-32) \div 2$

We observe that *when we divide a negative integer by a positive integer, we divide them as whole numbers and then put a minus sign (-) before the quotient. We, thus, get a negative integer.*

- We also observe that:

$$72 \div (-8) = -9 \quad \text{and} \quad 50 \div (-10) = -5$$

$$72 \div (-9) = -8 \quad \quad \quad 50 \div (-5) = -10$$

So we can say that *when we divide a positive integer by a negative integer, we first divide them as whole numbers and then put a minus sign (-) before the quotient. That is, we get a negative integer.*

In general, for any two positive integers a and b

$$a \div (-b) = (-a) \div b \quad \text{where } b \neq 0$$

Can we say that

$$(-48) \div 8 = 48 \div (-8)?$$

Let us check. We know that

$$(-48) \div 8 = -6$$

$$\text{and } 48 \div (-8) = -6$$

$$\text{So } (-48) \div 8 = 48 \div (-8)$$

Check this for

- (i) $90 \div (-45)$ and $(-90) \div 45$
- (ii) $(-136) \div 4$ and $136 \div (-4)$

TRY THESE

Find: (a) $125 \div (-25)$ (b) $80 \div (-5)$ (c) $64 \div (-16)$

- Lastly, we observe that

$$(-12) \div (-6) = 2; \quad (-20) \div (-4) = 5; \quad (-32) \div (-8) = 4; \quad (-45) \div (-9) = 5$$

So, we can say that *when we divide a negative integer by a negative integer, we first divide them as whole numbers and then put a positive sign (+). That is, we get a positive integer.*

In general, for any two positive integers a and b

$$(-a) \div (-b) = a \div b \quad \text{where } b \neq 0$$



TRY THESE

Find: (a) $(-36) \div (-4)$ (b) $(-201) \div (-3)$ (c) $(-325) \div (-13)$



1.7 PROPERTIES OF DIVISION OF INTEGERS

Observe the following table and complete it:

Statement	Inference	Statement	Inference
$(-8) \div (-4) = 2$	Result is an integer	$(-8) \div 3 =$	_____
$(-4) \div (-8) = \frac{-4}{-8}$	Result is not an integer	$3 \div (-8) =$	_____

What do you observe? We observe that integers are not closed under division.

Justify it by taking five more examples of your own.

- We know that division is not commutative for whole numbers. Let us check it for integers also.

You can see from the table that $(-8) \div (-4) \neq (-4) \div (-8)$.

Is $(-9) \div 3$ the same as $3 \div (-9)$?

Is $(-30) \div (-6)$ the same as $(-6) \div (-30)$?

Can we say that division is commutative for integers? No.

You can verify it by taking five more pairs of integers.

- Like whole numbers, any integer divided by zero is meaningless and zero divided by an integer other than zero is equal to zero i.e., *for any integer a , $a \div 0$ is not defined but $0 \div a = 0$ for $a \neq 0$.*
- When we divide a whole number by 1 it gives the same whole number. Let us check whether it is true for negative integers also.

Observe the following :

$$(-8) \div 1 = (-8)$$

$$(-11) \div 1 = -11$$

$$(-13) \div 1 = -13$$

$$(-25) \div 1 = \underline{\hspace{2cm}}$$

$$(-37) \div 1 = \underline{\hspace{2cm}}$$

$$(-48) \div 1 = \underline{\hspace{2cm}}$$

This shows that negative integer divided by 1 gives the same negative integer. So, *any integer divided by 1 gives the same integer.*

In general, for any integer a ,

$$a \div 1 = a$$

- What happens when we divide any integer by (-1) ? Complete the following table

$$(-8) \div (-1) = 8$$

$$11 \div (-1) = -11$$

$$13 \div (-1) = \underline{\hspace{2cm}}$$

$$(-25) \div (-1) = \underline{\hspace{2cm}}$$

$$(-37) \div (-1) = \underline{\hspace{2cm}}$$

$$-48 \div (-1) = \underline{\hspace{2cm}}$$

What do you observe?

We can say that if any integer is divided by (-1) it does not give the same integer.



TRY THESE

- Is
- $1 \div a = 1$?
 - $a \div (-1) = -a$? for any integer a .
Take different values of a and check.

- Can we say $[(-16) \div 4] \div (-2)$ is the same as $(-16) \div [4 \div (-2)]$?

We know that $[(-16) \div 4] \div (-2) = (-4) \div (-2) = 2$

and $(-16) \div [4 \div (-2)] = (-16) \div (-2) = 8$

So $[(-16) \div 4] \div (-2) \neq (-16) \div [4 \div (-2)]$

Can you say that division is associative for integers? No.

Verify it by taking five more examples of your own.

EXAMPLE 6 In a test (+5) marks are given for every correct answer and (-2) marks are given for every incorrect answer. (i) Radhika answered all the questions and scored 30 marks though she got 10 correct answers. (ii) Jay also

answered all the questions and scored (-12) marks though he got 4 correct answers. How many incorrect answers had they attempted?

SOLUTION

- (i) Marks given for one correct answer = 5

So, marks given for 10 correct answers = $5 \times 10 = 50$

Radhika's score = 30

Marks obtained for incorrect answers = $30 - 50 = -20$

Marks given for one incorrect answer = (-2)

Therefore, number of incorrect answers = $(-20) \div (-2) = 10$

- (ii) Marks given for 4 correct answers = $5 \times 4 = 20$

Jay's score = -12

Marks obtained for incorrect answers = $-12 - 20 = -32$

Marks given for one incorrect answer = (-2)

Therefore number of incorrect answers = $(-32) \div (-2) = 16$



EXAMPLE 7 A shopkeeper earns a profit of Re 1 by selling one pen and incurs a loss of 40 paise per pencil while selling pencils of her old stock.

- (i) In a particular month she incurs a loss of Rs 5. In this period, she sold 45 pens. How many pencils did she sell in this period?
- (ii) In the next month she earns neither profit nor loss. If she sold 70 pens, how many pencils did she sell?

SOLUTION

- (i) Profit earned by selling one pen = Re 1

Profit earned by selling 45 pens = Rs 45, which we denote by +Rs 45

Total loss given = Rs 5, which we denote by -Rs 5

Profit earned + Loss incurred = Total loss

Therefore, Loss incurred = Total Loss - Profit earned

= Rs $(-5 - 45) = \text{Rs } (-50) = -5000$ paise

Loss incurred by selling one pencil = 40 paise which we write as -40 paise

So, number of pencils sold = $(-5000) \div (-40) = 125$ pencils.

- (ii) In the next month there is neither profit nor loss.

So, Profit earned + Loss incurred = 0



i.e., Profit earned = - Loss incurred.

Now, profit earned by selling 70 pens = Rs 70

Hence, loss incurred by selling pencils = Rs 70 which we indicate by - Rs 70 or - 7,000 paise.

Total number of pencils sold = $(-7000) \div (-40) = 175$ pencils.

EXERCISE 1.4



1. Evaluate each of the following:

- (a) $(-30) \div 10$ (b) $50 \div (-5)$ (c) $(-36) \div (-9)$
 (d) $(-49) \div (49)$ (e) $13 \div [(-2) + 1]$ (f) $0 \div (-12)$
 (g) $(-31) \div [(-30) + (-1)]$
 (h) $[(-36) \div 12] \div 3$ (i) $[(-6) + 5] \div [(-2) + 1]$

2. Verify that $a \div (b + c) \neq (a \div b) + (a \div c)$ for each of the following values of a , b and c .

- (a) $a = 12, b = -4, c = 2$ (b) $a = (-10), b = 1, c = 1$

3. Fill in the blanks:

- (a) $369 \div \underline{\hspace{2cm}} = 369$ (b) $(-75) \div \underline{\hspace{2cm}} = -1$
 (c) $(-206) \div \underline{\hspace{2cm}} = 1$ (d) $-87 \div \underline{\hspace{2cm}} = 87$
 (e) $\underline{\hspace{2cm}} \div 1 = -87$ (f) $\underline{\hspace{2cm}} \div 48 = -1$
 (g) $20 \div \underline{\hspace{2cm}} = -2$ (h) $\underline{\hspace{2cm}} \div (4) = -3$

4. Write five pairs of integers (a, b) such that $a \div b = -3$. One such pair is $(6, -2)$ because $6 \div (-2) = (-3)$.

5. The temperature at 12 noon was 10°C above zero. If it decreases at the rate of 2°C per hour until midnight, at what time would the temperature be 8°C below zero? What would be the temperature at mid-night?

6. In a class test $(+3)$ marks are given for every correct answer and (-2) marks are given for every incorrect answer and no marks for not attempting any question.
 (i) Radhika scored 20 marks. If she has got 12 correct answers, how many questions has she attempted incorrectly? (ii) Mohini scores -5 marks in this test, though she has got 7 correct answers. How many questions has she attempted incorrectly?
 (iii) Rakesh scores 18 marks by attempting 16 questions. How many questions has he attempted correctly and how many has he attempted incorrectly?

7. An elevator descends into a mine shaft at the rate of 6 m/min. If the descent starts from 10 m above the ground level, how long will it take to reach -350 m.

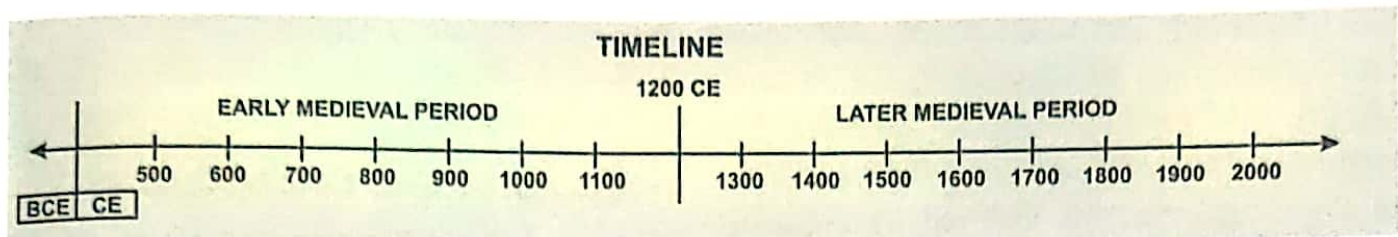
WHAT HAVE WE DISCUSSED?

1. Integers are a bigger collection of numbers which is formed by whole numbers and their negatives. These were introduced in Class VI.
2. You have studied in the earlier class, about the representation of integers on the number line and their addition and subtraction.
3. We now study the properties satisfied by addition and subtraction.
 - (a) Integers are closed for addition and subtraction both. That is, $a + b$ and $a - b$ are again integers, where a and b are any integers.
 - (b) Addition is commutative for integers, i.e., $a + b = b + a$ for all integers a and b .
 - (c) Addition is associative for integers, i.e., $(a + b) + c = a + (b + c)$ for all integers a , b and c .
 - (d) Integer 0 is the identity under addition. That is, $a + 0 = 0 + a = a$ for every integer a .
4. We studied, how integers could be multiplied, and found that product of a positive and a negative integer is a negative integer, whereas the product of two negative integers is a positive integer. For example, $-2 \times 7 = -14$ and $-3 \times -8 = 24$.
5. Product of even number of negative integers is positive, whereas the product of odd number of negative integers is negative.
6. Integers show some properties under multiplication.
 - (a) Integers are closed under multiplication. That is, $a \times b$ is an integer for any two integers a and b .
 - (b) Multiplication is commutative for integers. That is, $a \times b = b \times a$ for any integers a and b .
 - (c) The integer 1 is the identity under multiplication, i.e., $1 \times a = a \times 1 = a$ for any integer a .
 - (d) Multiplication is associative for integers, i.e., $(a \times b) \times c = a \times (b \times c)$ for any three integers a , b and c .
7. Under addition and multiplication, integers show a property called distributive property. That is, $a \times (b + c) = a \times b + a \times c$ for any three integers a , b and c .

8. The properties of commutativity, associativity under addition and multiplication, and the distributive property help us to make our calculations easier.
9. We also learnt how to divide integers. We found that,
 - (a) When a positive integer is divided by a negative integer, the quotient obtained is a negative integer and vice-versa.
 - (b) Division of a negative integer by another negative integer gives a positive integer as quotient.
10. For any integer a , we have
 - (a) $a \div 0$ is not defined
 - (b) $a \div 1 = a$



WHEN, WHERE AND HOW



Unlike many other countries, India has been known by diverse names during different periods of history. The word 'Hindu' is generally accepted as having originally been a Persian word for someone who lived around or beyond the Indus river which was called **Sindhu** in Sanskrit and meant any inhabitant of Indian subcontinent before the partition. In Persian and Arabic, the term 'Hind' denotes the Indian subcontinent. The name **India** was first applied by the Persians to the region watered by Sindhu. The Muslims during the Medieval period called the subcontinent **Hindustan** and referred to the people as Hindus. Hindus, here literally meant a native of Hindustan and had no significant religious connotation as we understand it today. Today, the country India as we know, is also called Hindustan.

MEDIEVAL INDIA

The history of the world can be divided into three broad periods, namely Ancient, Medieval and Modern. Each of these periods covers many centuries and the length of a period may differ from one part of the world to another. For example, the Medieval period began around the fifth century CE in Europe but around the eighth century CE in India. The Medieval period in India covers roughly 1100 years. The time frame of Medieval period is taken as 700-1800 CE.

MAJOR POLITICAL DEVELOPMENTS

The Medieval period in India can be broadly divided into two phases— the early Medieval period and the later Medieval period. The history of the early Medieval period is centred on power struggles among regional kingdoms of both North and South India. The most prominent among these kingdoms were Rajputs, Palas, Pratiharas, Rashtrakutas and Cholas.

The distinctive cultural characteristics of the regional kingdoms spread to the new regions that came under them.

In the later Medieval period, there were a number of invasions by Muslim conquerors from central Asia. Among the invaders were Turks, Afghans and the Mughals. The defeat of



Fig. 1.1 Muhammad Ghori

Rajputs at the hand of Muhammad Ghori brought India under the rule of Slave dynasty. After the fall of Slave dynasty, the Khalis, Tughlaqs and Lodis came to power. The combined period of these dynasties is known as Delhi Sultanate. The luster of Sultanate soon faded away when Babur founded the Mughal empire. His grandson, Akbar extended his empire over the whole of North India and parts of the South. He was followed by Jahangir, Shahjahan and Aurangzeb. The Mughal empire declined sharply after the death of Aurangzeb. The successors of Aurangzeb were weak and incompetent rulers. Thus, provincial Governors asserted their independence and established regional kingdoms.

CARTOGRAPHY AND MEDIEVAL INDIA

The skill of cartography or map making was practically unknown in ancient India. (The growth of trade and expansion of empires in the Medieval period created the need for accurate maps) The Arabs and Europeans who undertook long journeys over land and sea developed cartography. The map shown alongside is a map of the world as was drawn in the twelfth century by Al-Idrisi, a cartographer from Morocco.

The map has the south shown at the top, Arabia is at the centre and to the left of Arabia is India. Above South India is an island which is probably Sri Lanka. By the end of Medieval period, cartography became more accurate. Most maps of India belonging

to this period were drawn by sailors who were more familiar with the coastal regions. Medieval maps and the writing of Medieval authors provide valuable information about the geographical features and the name of places. However, the place names mentioned in these documents may have changed with time. In such cases, the historians has to find out the present names.

HISTORIANS AND THEIR SOURCES

Historians use different types of sources to learn about the past depending upon the period of their study and the nature of their investigation. You will notice some continuity in the sources used by historians for the study of this period. They still rely on coins, inscriptions, architecture and textual records

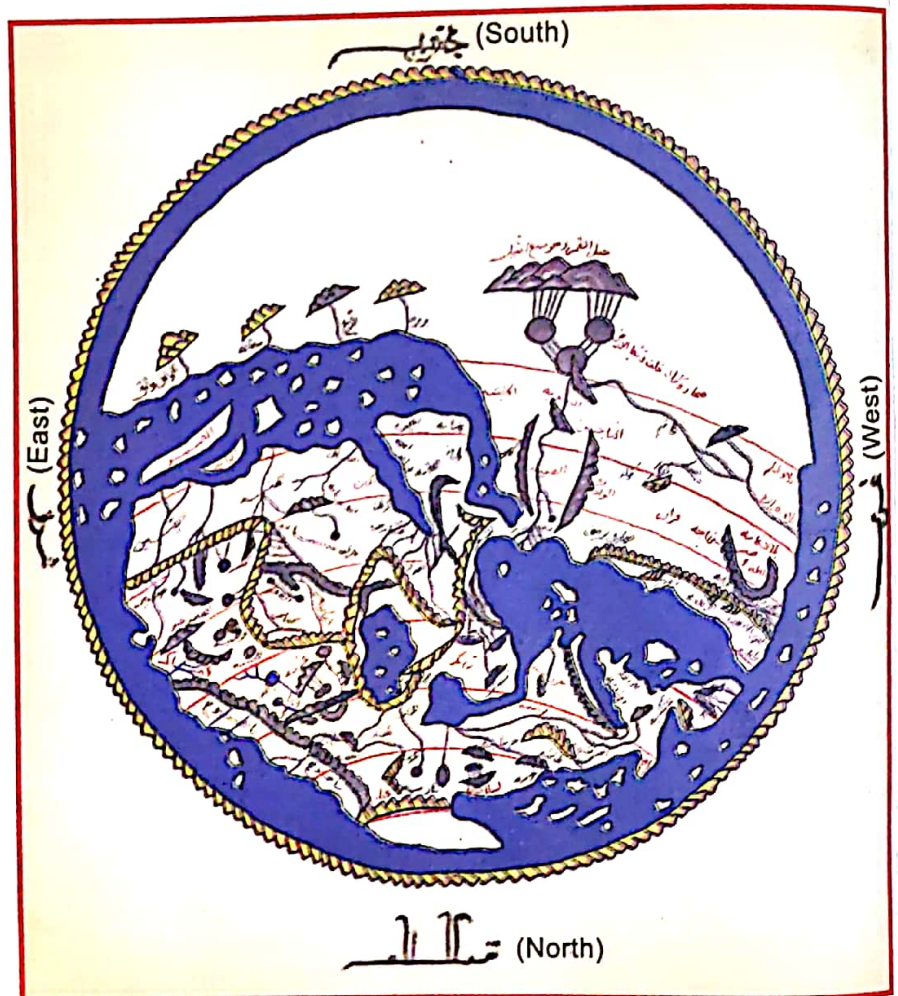


Fig. 1.2 Map of World by Al-Idrisi



SNIPPETS

A book on coins named 'Drarya-Pariksha' was written during the time of Alauddin Khalji. It lists the coins minted during this period.

for information. The number and variety of textual record increased dramatically during this period. They slowly displaced other types of available information. Through this period, paper gradually became cheaper and more widely available. People used it to write holy texts, chronicles of rulers, teachings by saints, etc.

Archaeology focuses on the study of physical remains and the methods used on recovering



Fig. 1.3 Buildings are an important archaeological sources.

them. Archaeological evidences include buildings, inscriptions, paintings and coins.

Inscriptions

Inscriptions can be defined as the wordings inscribed on a coin, pillar, monument or seal. They help us in discovering and reconstructing the history and culture of a particular period. Reconstruction is essential for gaining greater

details of the civilisation that one wishes to study. The science relating to the study of inscriptions is called Epigraphy.

Buildings

Buildings and monuments including temples, forts, tombs and mosques provide a lot of information. They tell us about architecture and reveal the cultural history of the period.

Coins

The study of ancient and medieval coinage has validated historical events known from literature, artefacts and other archaeological evidences. Coins contain authentic information about the names and dates of different rulers. They also highlight the economic condition of the period. Sometimes the coins of kingdoms are discovered in many places, very far from one another. This indicates that all these places were part of this kingdom or they had trade with them. The science pertaining to systematic collection and study of coins is called Numismatics and the person who studies these coins is called Numismatist.



Fig. 1.4 Medieval coins

Sculptures and Paintings

Monuments were adorned with beautiful sculptures and paintings. The sculptures were made of stone, bronze and wood. A good number of these sculptures are figures of

kings, queens, gods and goddesses. Medieval paintings feature various themes such as mythological tales, palace scenes, battle scenes and forest life. In the Medieval period, we also come across mural paintings and somewhat later miniature painting. The latter emerged under the impact of Islam and the most famous school of miniature painting is the Mughal school.

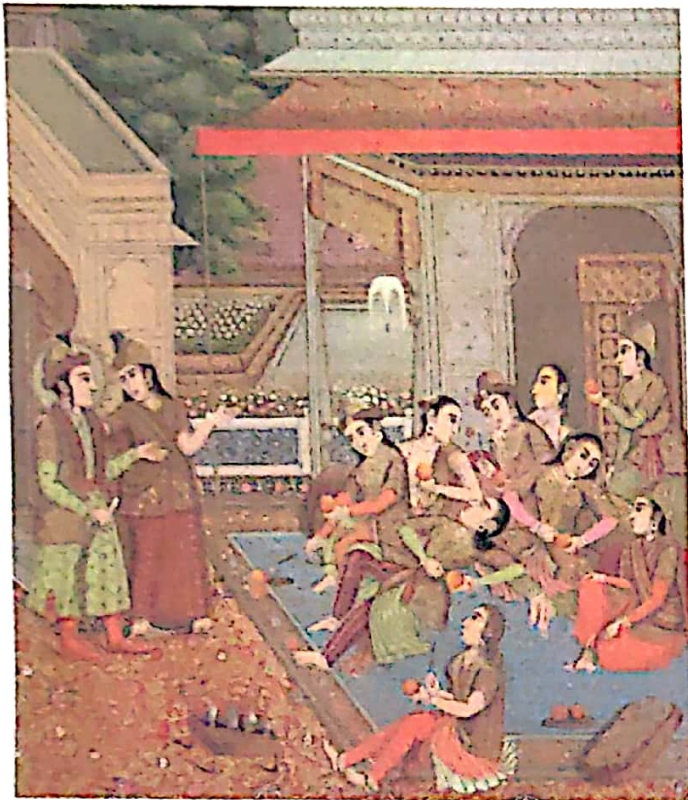


Fig. 1.5 Mughal painting

Literary Sources

In ancient times, people mostly wrote on palm leaves, the bark of the birch tree, wood blocks and stone tablets. From the 13th century



SNIPPETS

An edict pillar of Ashoka more commonly known as 'Ashoka Lat' was found in Allahabad in 1837. Besides Ashoka it bears inscriptions by Jahangir as well; that belongs to 1605 CE.

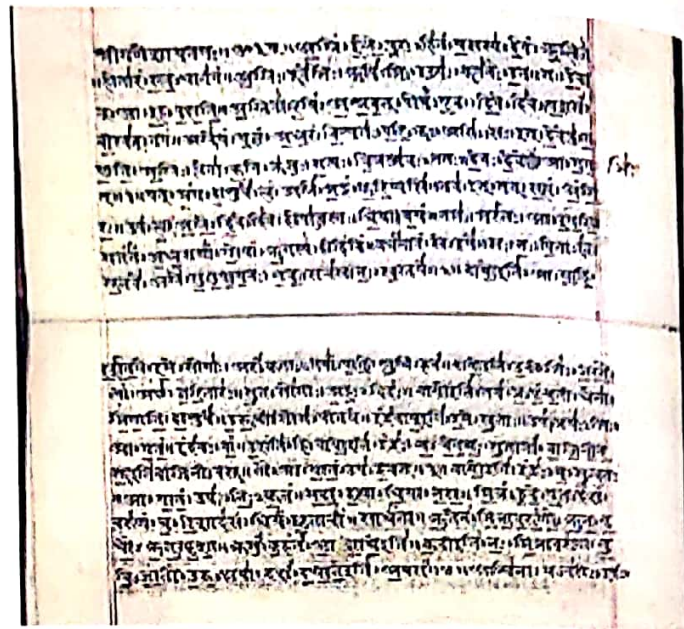


Fig. 1.6 A literary source

onwards, paper began to be used for writing. The Medieval age in Indian history forms a fountainhead of Indian cultural heritage. It witnessed numerous invasions by Muslim rulers who spoke Persian, Arabic and Turkish. Thus, Medieval literary texts are found written in these languages along with Sanskrit.

A very common literary form was the chronicle. A chronicle can be defined as an extended account of historical events written in prose or verse, presented in a chronological order. The chronicles include biographies, autobiographies and memoirs of different kings and rulers.

The period saw a profusion in writing of all kinds— biographies such as that of Sher Shah called Tarikh-i-Sher Shahi written by Abbas Shervani and autobiographies such as Babur's 'Baburnama' and Jahangir's 'Jahangirnama'.

Abul Fazal's 'Akbarnama' and 'Ain-i-Akbari' are complementary works. Shahjahan's court historian Abul Hamid Lahori wrote 'Padshahnama'. Many books in Sanskrit and other languages were translated into Persian like Badami translated Ramayana.

Badami

Scholars often wrote the history of rulers or the ruling dynasty of the kingdom in which they lived. 'Rajatarangini' was written by Kalhana which deals with the history of Kashmir. 'Bibhana Vikramadevacharita' describes the achievements of Vikramaditya VI, the Chalukya king of Kalyani in South India.

Many foreign travellers and scholars visited India during the Medieval period. They have left valuable account of their journeys and experiences in India. One such visitor was Ibn Batuta who was a Moroccan who visited India during the rule of Tughluqs. Marco Polo of Venice, Domingo Paes of Portugal, Nicolo Conti of Italy and Anastacy Nikitin of Russia were some other travellers who visited India and wrote about this country. Many scholars account regarding contemporary India. Francois



Fig. 1.8 Calligraphy

CALLIGRAPHY

Many of the Persian manuscripts were beautifully illustrated. They used floral and geometric designs and no human figures. The handwritten manuscripts were also stylishly written. Stylish writing is known as **calligraphy**. It was not just writing but also a form of decoration used even on monuments.

As there was no printing press in India in Medieval times, all Indian paper documents of the time were manuscripts (handwritten documents). Often scribes (employed to keep records) made copies of the original document. While doing this, they sometimes copied incorrectly. Some scribes also put in their own language or their own thought on the subject. All this gradually changed the original text. Historians have to gather information from these changed documents, if they cannot find original documents. This is difficult because the historian has to study all the available versions carefully and cross check the contents against other dependable evidences.

Another problem is that the languages used in old documents have changed over time. The spelling and meaning of words, the grammar



Fig. 1.7 Marco Polo

Bernier is the author of 'Travels in the Mughal Empire' and Manucci was the author of 'Storio Dor Mogor'.

and even the scripts have changed. Historians cannot read some of the documents because they are unable to read the scribe's handwriting or because the script is no longer in use. For example, the term **Mlechchha** was used during the ancient period for all non-Aryan people including hill and forest dwellers. During the early Medieval period, the term referred to all foreigners and culturally different people; from kings to untouchables. Gradually as some Mlechchhas were absorbed in Varna system, the term came to be applied to meat eating people and those who did not observe caste rules.

Keeping Records

The elaborate systems of administration in Medieval India required the keeping of records. The paper documents that come down to us are at present preserved in archives. An archive is a collection of historical documents and records of a government, family or other organisation. Medieval documents and inscriptions include records of land revenue and land grants; works of religious literature and secular works such as writings on travels history and science.

New Social and Political Groups

Medieval period was a period of economic, political, social and cultural changes. During this period, many new social groups emerged. Among them were Rajputs, who were warriors of Rajasthan, the Sikhs, who were a religious group of Punjab and the Jats of Haryana who were farmers. Many of these social groups were absorbed into the caste system. For example, the Rajputs who always wanted to be heroic and noble got Kshatriya (warrior) caste status. With the expansion of agriculture and trade, wealthy landowners and traders

acquired higher social status. With agricultural expansion, forest dwellers, tribal and even some outcastes took to cultivation and were absorbed into Shudra caste. Some people took to new professions besides their traditional ones. For example, the Brahmans were the highest caste, some of them entered lower caste professions like agriculture and trade.

The growth of new professions gave rise to new subcastes or Jatis. A Jati consisted of people who belonged to the same profession. Prominent among the Jatis that emerged were the Kayasthas— a subcaste of scribes. They rose to prominence because record keeping had become an important profession. Jatis formed their own rules and regulations to be followed by their members. These regulations were enforced by an assembly of elders.

Many foreign traders settled in the prosperous cities which grew along the Indian coastline. They brought with them their cultural ideas, religious beliefs, social customs, new technologies and even fruits, and vegetables. For example, the period saw the introduction of new technology like Persian wheel in irrigation and the spinning wheel in cloth weaving. India was introduced to Chinese sericulture (silk production by raising silkworms). The Turks brought melons, oranges, lemons, plums and peaches. The Portuguese brought potatoes, tomatoes and chillies.

Old and New Religions

Some important changes occurred in Hinduism during this period. This included the worship of new deities, the construction of temples by royalty and the growing importance of Brahmans. Their knowledge of Sanskrit text earned the Brahmans a lot of respect in society. Another development of this period was

॥ श्रीगणेशाय नमः ॥ ॥ अथ रात्रिसूक्तं ॥ ॥
रात्रीव्यख्यदायती पुरुत्रादेव्यक्षभिः ॥ विश्वा
ऽधिश्चियोधित ॥ ओर्वत्राऽमर्त्यानिवतो
देव्युद्भूतः ॥ ज्योतिषाबाधते तमः ॥ निरुत्सवा
मस्तुतोषसंदेव्यायती ॥ अयेदुहासते तमः ॥
सानोऽभयस्यावयं नितेयामुनविष्मदि ॥ वृ
क्षेनवसतिवयः ॥ निग्रामासोऽविक्षतनि

Fig. 1.9 Sanskrit text

3

the emergence of the ideas of Bhakti. (It meant loving a deity which devotees could reach without the aid of priests or elaborate rituals.)

During this period, a new religion called Islam appeared in the subcontinent. It arose in Arabia in the seventh century CE. It is centred on the belief of one God, 'Allah' and the teachings of his last Prophet, **Muhammad**. These teachings are contained in the holy book of Muslims known as **Quran**. Merchants and migrants first brought the teachings of the holy Quran to India in the seventh century.

After Prophet Muhammad's death, a Caliph or Khalifa succeeded him as the religious and political head of the Muslim community. Later, the community split into two major sects, namely, Shia and Sunni. The Shias regard Muhammad's son in law Ali as the Prophet's true successor. The Sunnis believe that a Caliph should be chosen by the whole community.

Using Different Sources

The historian has to judiciously and carefully use the different sources while writing history. Certain sources such as archival records and coins are considered more reliable than certain other type of sources like literature or oral traditions. Sometimes the information provided in one source may be contradictory to that of another source. In some cases, the information contained in the literary text or inscriptions may not be straight forward. Such texts lend themselves to multiple interpretations. In other words, each historian will interpret the texts in a different manner.

1

SANT NIRANKARI PUBLIC SCHOOL, MALVIYA NAGAR**Class- VII****Subject-Social Science (History)****Lesson -1 WHEN, WHERE AND HOW****Worksheet-1****Date 04-04-2020****Date of submission 07-04-2020****Instructions:**

- Read chapter-1 When, Where and How.
- Find out all the answers and write them neatly.
- You can use any old notebook or sheets which is easily available at home.
- Stay at home. Stay safe!

Answer the following questions in brief

1. What is epigraphy?
2. Define numismatics.
3. Which period of Indian history is called Medieval period?
4. In what way the meaning of term Hindustani, changed over the centuries?
5. Who wrote tarikh-i-Shershahi?

Choose the correct option

- a. Which of the following is not an archaeological evidence?
I. Inscriptions II. Coins III. Chronicles
- b. Ain-i-Akbri was written by _____
I. Babur. II. Akbar. III. Abul-fazal
- c. _____ wrote Baburam.
I. Akbar. II. Bahut. III. Jahangir
- d. Cartographer is one who draw
I. Pictures. II. Sketch III. Maps
- e. Al-Idrisi was a _____ Cartographer.
I. Arabia. II. French III. German
- f. Study of coins is called-
I. Epigraphy. II. Calligraphy III. Numismatics

2**Match the following**

- | | |
|------------------------|---|
| g. Babur. | i. was an Afghan traveller |
| h. Al Beruni. | ii. founded Mughal Empire |
| i. Marathas. | iii. consolidated Mughal Empire |
| j. Miniature paintings | iv. used Guerilla tactics to defeat Mughals |
| k. Akbar. | v. were symbolic in Medieval times |

Write True or False for the following statements

- l. We don't find instructions for the period after 700 CE.
- m. The medieval period began almost at the same time in India and in Europe.
- n. The Portuguese brought irrigation wheels to India.
- o. Chronicle is an archeological source of information.
- p. Muslims established their kingdom in South India during Medieval times.

Activity

Paste any five monuments of India on an A4 sheet.

SANT NIRANKARI PUBLIC SCHOOL, MALVIYA NAGAR**Class- VII****Subject-Social Science (History)****Lesson -1 WHEN, WHERE AND HOW****Worksheet-2****Date 08-04-2020****Date of submission 11-04-2020****Answer the following questions**

1. What is meant by bhakti?
2. Give the reason, why the science of cartography progressed during medieval period?
3. What does the term biography mean?
4. From which country Marco Polo came to India?
5. Where is Ashoka Pillar located?
6. Who translated Ramayana in Persian language?

Choose the correct option

- I. Persian wheel is used in _____
a. Irrigation b. Weaving c. Driving
- II. The early mediaeval period runs between
a. 12th – 17th CE. b. 8th – 12th CE. c. 8th – 16th CE

Fill in the blanks

- I. Medieval period is further subdivided into two parts _____ and _____.
- II. The name of Babar's autobiography is _____.
- III. Kayastha were _____ by profession.
- IV. Archives are places where _____ documents are kept.
- V. After Prophet Muhammad's death the Muslim community split into two major sects _____ and _____.

Earth is the only planet in our solar system which sustains life. All kinds of plants and animals live on earth. (The word 'Environment' denotes the surroundings or external conditions influencing the development or growth of people, animals and plants.) Thus, we can say that the physical and biological conditions in which a living organism lives, collectively make up its environment. Animals and plants also play an important role in our life. We cannot live in isolation from other forms of life because we depend on them for our food and other necessities of life. Thus, it is necessary to understand the processes that support our environment.

Land, water, air and living organisms are the four major components of environment. They can be grouped into two major categories—Abiotic and Biotic Environment.



Fig. 1.1 Abiotic Environment

ABIOTIC ENVIRONMENT

It is also known as the physical environment as it comprises land, water and air. A change in the

physical environment brings about a change in the biotic environment.

BIOTIC ENVIRONMENT

It is also known as biological environment as it comprises mankind, plants, animals and other living organisms. Biological environment is largely dependent on physical environment.



Fig. 1.2 Biotic Environment

Both components of environment i.e. abiotic and biotic are inseparable. Geography studies the inter-relationship between living organisms and the environment. Moreover, these components of environment are not static. They are always changing because of various processes; although these changes may be slow as well as sudden.

INTERACTION BETWEEN BIOTIC AND ABIOTIC ELEMENTS

The biotic and abiotic elements of the environment are dynamic in nature. (As Sun is the major source of energy, all the changes in the abiotic environment are powered by solar energy.) The constant circulation of air and water brings

about changes in climatic conditions in different seasons. These changes affect the biotic components. All living organisms (plants and animals) depend on abiotic environment for their food. They depend on land, air, water and Sun for their basic necessities. These components of the abiotic environment also affect the biotic elements in a number of ways. New species of plants and animals evolve and if old species fail to adapt to changing environment, they become extinct. Human beings also bring changes in the physical environment by different activities like mining, road construction, agriculture, quarrying and others. The interaction between the elements of physical and biological environment are responsible for all variations in vegetation, soil and distribution of plants and animals.

BIOSPHERE

The life bearing layer of the earth's surface is called Biosphere. This is a small zone of interaction of air, water and land where living organisms survive. Some of the organisms live in the air slightly above the surface of the earth. Some organisms live in water and remaining organisms live on the surface of the earth. The biosphere is a unique feature of our earth. It is because of this zone that life can exist and flourish. (This zone provides us with all our necessities.) (Life is not possible outside the limits of the biosphere.) (Biosphere consists of a great variety of flora and fauna.) Life is not possible on other planets as they do not have biosphere.

All the elements of biosphere are dynamic as they derive energy from the Sun. The Sun is the Primary source of energy. The energy is also transferred from one source to another. (Wood, petroleum, coal, running water, etc are the Secondary sources of energy.) In the biosphere, there are two major elements i.e. the producers

and the consumers. The producers or autotrophs are capable of producing their own food directly from the environment. The organisms that are not able to produce their own food directly from the environment are called heterotrophs and include consumers such as animals and human beings. They depend on other plants and animals for their food. Almost all the animals are heterotrophs.

The consumers can be divided in three categories- the herbivorous, the carnivorous and the omnivorous. (The herbivorous are plant eaters such as cow, goat and other such animals.) (The carnivorous are meat eaters, like tiger, lion, etc.) (Omnivorous are those which eat both plant as well as meat eaters for example, human beings.) Another category is decomposers, who feed on dead bodies of plants and animals.

DOMAINS OF ENVIRONMENT

The environment may be divided into four major domains or spheres.

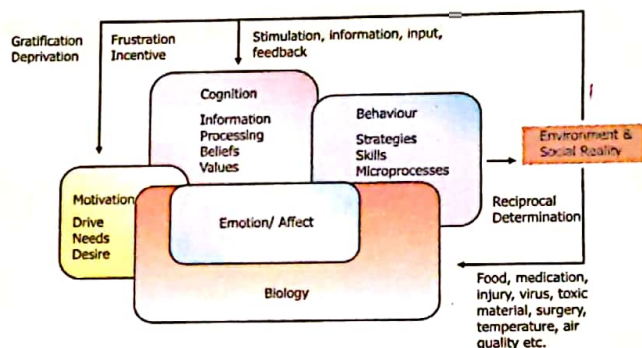


Fig. 1.3 Domains of Environment

Atmosphere

It is a gaseous envelope surrounding the earth. The elements of the environment such as temperature, rainfall, winds, humidity, etc combine to produce weather and climate which affect natural processes. The atmosphere has several layers, each having distinct properties and utility. (Atmosphere protects us from

producers → autotrophs.
consumers → heterotrophs.

scorching heat and ultraviolet radiations of the Sun.)

Lithosphere

- It is the layer of earth which consists of rock material. (The uppermost layer of lithosphere is known as crust which consists of a variety of rocks.) (Lithosphere is very important for us because it provides us land to live on and soil for the growth of plants.) (Most of the human activities are confined to this domain of the environment.)

Hydrosphere

- It is the realm of water. It includes all water bodies including rivers, oceans, lakes, seas, etc.)
- It covers nearly 71% of the earth's surface. (The Earth is known as Blue planet because it has abundance of water.) (Oceans are the largest water bodies on the earth.) Besides linking various land masses (continents), they play a major role in determining the climate in the hydrological cycle. (Rivers and lakes are freshwater bodies which provide us potable water.) These water bodies are crucial for the survival of human beings.

Biosphere

It is called domain of life which contains all living organisms. The average thickness of this



SNIPPETS

We human are also a great source of danger to our environment. We have ransacked the planet for ways to get fuels and raw materials, and cause extinction of about 50 species of plants and animals in a single day.

layer is about 30 km. (Most of the plants or animals are found on or near the surface of land.)

ENVIRONMENT AND HUMAN BEINGS

With the advancement in science and technology, human interference with the natural environment is increasing alarmingly. (Human activities such as agriculture, mining, transport, industry and construction, etc have adversely affected our environment) in a number of ways and now pose a grave threat to our environment. The area under forest has decreased, a number of animal species are becoming extinct. The polar ice caps are melting and the environment has been polluted to dangerous levels. There is a rise in temperature globally and this environmental degradation is affecting the survival of human race. So, we need to initiate steps to stop this environmental degradation.

SANT NIRANKARI PUBLIC SCHOOL, MALVIYA NAGAR

Class- VIII

Subject-Social Science (Geography)

Lesson -1 OUR ENVIRONMENT

Worksheet-3

Date 13-04-2020

Date of submission 17-04-2020

Answer the following questions in brief.

1. What is environment?
2. Name the types of component of environment.
3. What is biosphere?
4. What do you understand by carnivorous?
5. What are heterotrophs?
6. Name some secondary sources of energy.

Define the following

1. Biosphere
2. Lithosphere
3. Hydrosphere
4. Herbivorous
5. Carnivorous

Fill in the blanks

1. Abiotic component of environment includes _____ and _____.
2. _____ degradation affects human survival adversely.
3. Earth is the only planet of our _____ which sustains life.
4. _____ are those who eat both plants and meat.
5. _____ links various continents.

SANT NIRANKARI PUBLIC SCHOOL, MALVIYA NAGAR

Class- VIII

Subject-Social Science (Geography)

Lesson -1 OUR ENVIRONMENT

Worksheet-4

Date 18-04-2020

Date of submission 22-04-2020

Give answer in one word or sentence

1. Name the layer of earth consisting rocky material.
2. How much earth's surface hydrosphere covers?
3. What do you call a person who eats both meat and vegetables?
4. Name any three abiotic components of environment.
5. Which water bodies links various continents?
6. What is the scientific name of plant eaters?
7. What is an organism called, that make its own food?
8. Name the organism that cannot produce their own food.
9. What is the realm of water is called?
10. Name primary source of energy.
- 11.. Name three secondary source of energy.

Write True or False for the following statements

1. Autotrophs can not prepare their own food.
2. Land is not a component of environment.
3. Biosphere protects us from scorching heat and ultraviolet radiation.
4. Many human activities effect the environment adversely.
5. The components of environment remain static over a long period of time.

Activity found Ford

Paste the pictures of any three organism Found in abiotic and biotic environment.