Ch-1 Integers

Introductory Activity

In this magic square, sum of the numbers in every row, column and each of the ~~four~~ diagnols is -2. Fill in the blanks

7	-7	-6	4
-4	2	1	-1
0	-2	-3	3
-5	5	6	-8

NATURAL NUMBERS

* Natural numbers are counting numbers.
* It doesn't include 0
* $N = \{1, 2, 3, 4 \ldots\}$
* The largest natural number is undefined

Whole Numbers

* The set of natural no's together with zero.
* $W = \{0, 1, 2 \ldots\}$
* Zero is the smallest whole number.

Integers

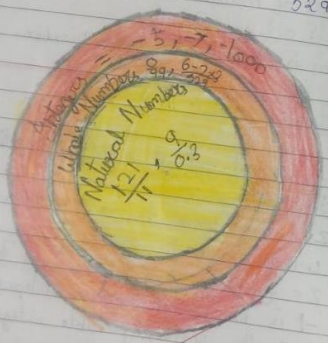
* The set of natural numbers together with whole nos
* Denoted by 'Z'
* 'Z' comes from the german word 'zahlen' which means to count.
* $Z = \{\ldots -3, -2, -1, 0, 1, 2, 3 \ldots\}$
* -1 is the greatest negative integers.
* 1 is the smallest possible integer
* Zero is neither positive nor negative.
* Zero is greater than every negative integer

and less than every positive integer.

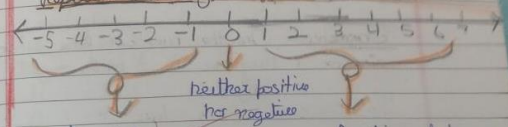
Diagrammatic Representation of Integers (Venn diagram)

Where could you place the given integers ?

$\{-5, \frac{121}{11}, -7, \frac{9}{0.3}, \frac{0}{99}, -1000, \frac{6-2\times3}{529}\}$



Representation of Integers on Number Line



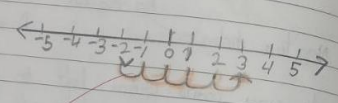
* As you move from left to right on a number line, the value of the integer increases.
* From right to left the value decreases.

Ordering of Integers

* Order of integers on the left side of the number line are smaller than 0 and order of integers on the right side of the number line.
* All positive integers are greater than negative integers.
* On the number line all integers are equivalent

from each other.

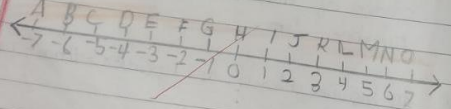
Example:- On the number line which number is 3 units right of 2



Sol. 3 is 3 units right of -2

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, O

Sol
B = -6
D = -4
H = 0
J = 2
M = 5
O = 7

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

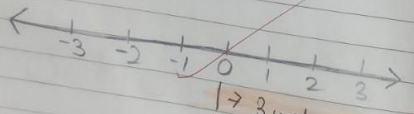
Sol Ascending order = -5, 0, 4, 7

Absolute Value of Integers :-

* Absolute value of a number is the distance from zero to that number on the number line.
* That distance is always positive.
* The symbol of absolute value is "||".
* $|-x| = x$ and $|x| = x$ where x is any integer.

Example of absolute value

* The distance from 0 to 3 is three units. Thus $|3| = 3$ ~~and~~ The absolute value of 3 is 3.



* Similarly, the distance from 0 to -3 is also 3 units. Thus -3 is also equal to 3.

NOTE:-

* The absolute value of a positive number is positive $|5| = 5$
* The absolute value of a negative number is positive $|-5| = 5$
* The absolute value of 0 is 0.

20/03/2023

Additive Inverse

* If the sum of any two integers is 0, then each integer is called the Additive inverse of the other.
* If 'A' is any integer then, $a+(-a) = a-a = 0$

Examples :-

* Additive ~~integer~~ inverse of 10 is -10, as $10+(-10) = 0$
* Additive inverse of 9 is -9, as $(-9)+9 = 0$

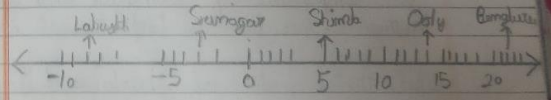
Note :-

* Additive inverse of 0 is 0 itself.
* Additive inverse is also called the opposite of the number.

Page No. 31

Negative (-)	POSITIVE
Decrease	Increase
Lose	Gain
Below	Above
Down	Up
Withdraw	Deposit
Descend	Climb
Fall	Rise
Lower	Raise
Drop	Grow
Reduce	Earn

Exc 1.1 (Pg-4)



a. Lahulspiti = -8°C
Srinagar = -2°C
Shimla = 5°C
Ooty = 22°C

Banglore = 22°C

b. Hottest place = Banglore = 22°C
Coldest place = Lahulspati = -8°C
Difference = 22°C - (-8)°C
= 22°C + 8°C
= 30°C

c. Difference between Lahulspati and Srinagar =
=) -8°C - (-2°C)
=) -8°C + 2°C
=) -6°C

d. Temperature of Srinagar and Shimla
Yes, temperature of Srinagar and Shimla together is less than the temperature at Shimla
No, the temperature of Shimla and Srinagar together is not less than the temperature at Srinagar

20/03/2023

Page No. 33

HW

2. Jack scores in 5 successive rounds are 25, -5, -10, 15 and 10.

Sol Total score => 25 + 15 + 10 + (-5) + (-10)
=>

Positive	Negative	Total
25	-5	50
+15	-10	-15
+10	-15	35
50		

=) 35

21/3/23

3. Sol Temperature at Srinagar on Monday = -5°C
Temperature at Srinagar dropped by -2° = -2°C
Temperature at Srinagar on Tuesday = -7°C
Temperature at Srinagar on Wednesday rose by 4°
= -7°C + 4°C
= -3°C

4. Given:-

Height of a plane above sea level = 5000 m
= +5000 m

Submarine floating below sea level = 1200 m
= −1200 m

Vertical distance between them = 5000 − (−1200)
= 5000 + 1200
= 6200 m

6 Given:-

Distance travelled by Rita towards east = +20 km
Distance travelled by Rita towards west = −30 km

The distance travelled towards west is represented by negative sign.

Final Position = 20 − 30 = −10 km

HW

5. Money Moham deposited in his bank = ₹2000
Money Moham withdrawed in his bank = ₹1642

If withdrawal money is denoted by −, then deposited money is denoted by +

Money left after withdrawal = 2000 − 1642
= 358

7 (i)

5	−1	−4	= 0
−5	−2	7	= 0
0	3	−3	= 0
= 0	= 0	= 0	

(−6)

Since a diagnol isn't equal to 0, (i) isn't a magic square

(ii)

1	−10	0	= −9
−4	−3	−2	= −9
−6	4	−7	= −9
−9	−9	−9	= −9

(−9)

Since all sides and diagnols are equal. (ii) is a magic square

8. Verify a − (−b) = a + b

(iii) a = 75, b = 84

a − (−b) = a + b
75 − (−84) = 75 + 84
75 + 84 = 75 + 84
159 = 159
LHS = RHS
Hence verified

(iv) a = 28, b = 11

a − (−b) = a + b
28 − (−11) = 28 + 11
28 + 11 = 28 + 11
39 = 39
LHS = RHS
Hence Verified

HW

8 (i) a = 21, b = 18

a − (−b) = a + b
~~a + b~~
21 − (−18) = 21 + 18
21 + 18 = 21 + 18
39 = 39
LHS = RHS

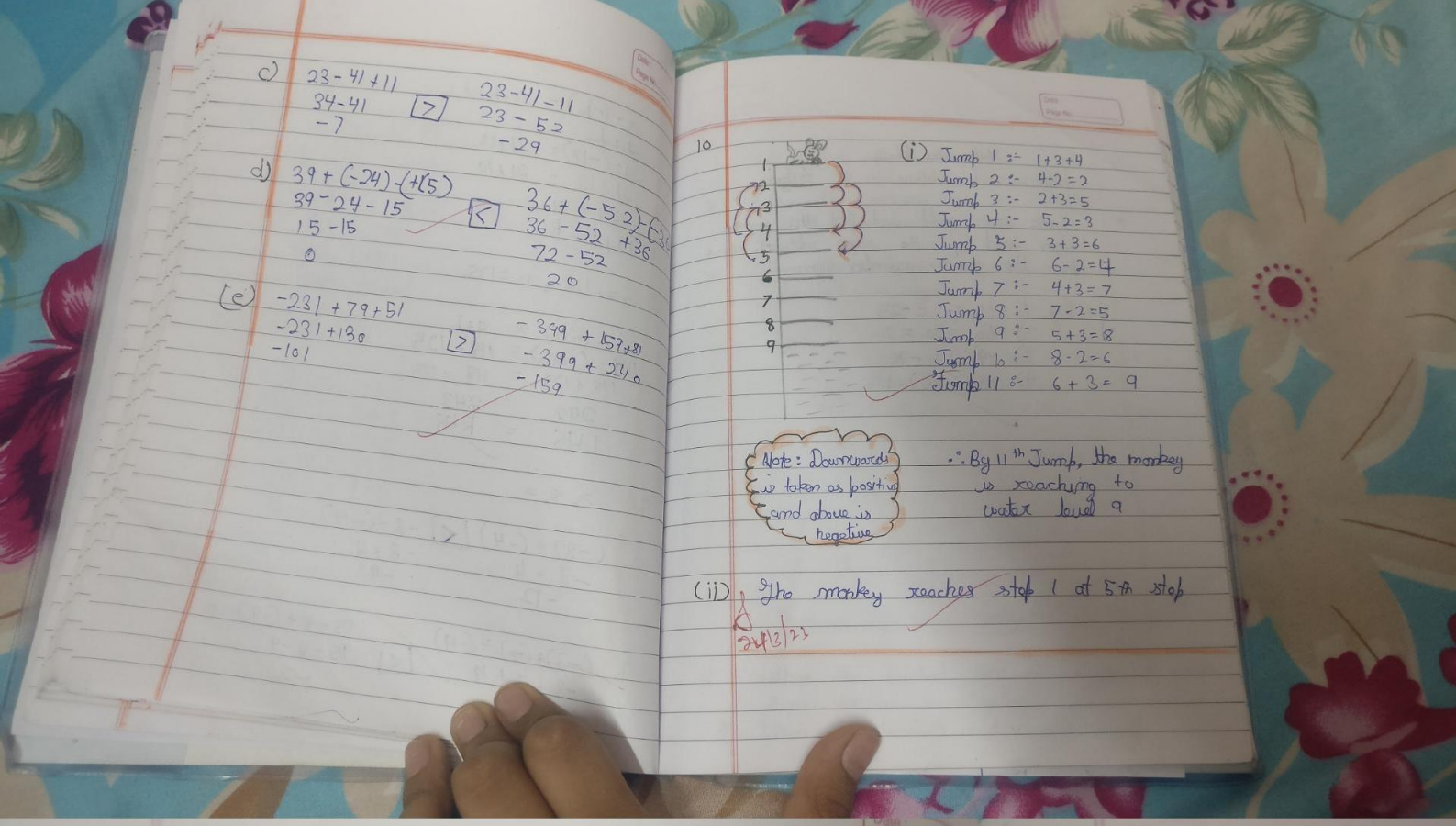
(ii) a = 118, b = 125

a − (−b) = a + b
118 − (−125) = 118 + 125
118 + 125 = 118 + 125
243 = 243
LHS = RHS

9 >, <, =

a. (−8) + (−4) < −8 − (−4)
−8 − 4 = −8 + 4
−12 = −4

b. (−3) + (−7) − (−19) < 15 − 8 + (−9)
−3 + 7 + 19 = 15 − 8 − 9
−15 = −2



Addition and Subtraction of Integers

* Same sign add and put the same sign and opposite sign subtract and put the greater number sign.

Eg. 1) $-15-10 = -25$
2) $+60-30 = 30$
3) $-99+1 = -98$
4) $100-(-25) = 125$

Multiplication of

* When the product is

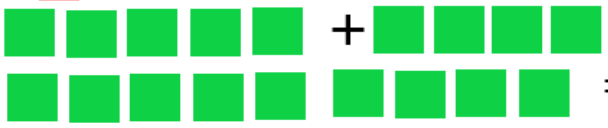
* When the product

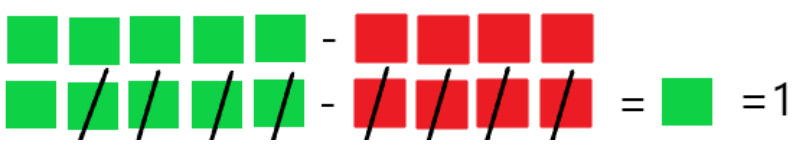
Eg: 1)
2)
3)
4)

Addition and Subtraction of Integers

Green box = +1

Red box = -1

1. 5+4=  =9

2. 5-4=  =1

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Multiplication of two integer

* When the integers are of like signs - product in positive
* When the integers are of unlike signs - product in negetive.

Eg: 1) $-5 \times -3 = 15$
2) $-15 \times 10 = -150$
3) $100 \times 5 = 500$
4) $6 \times -2 = -12$

a	b	a × b
+	+	+
−	+	−
−	−	+
+	−	−

Division of two Integers

* When the dividend and divisor are of unlike signs: quotient is negative
* When the dividend and divisor are of

like signs: Quotient is Positive

Eg 1. $\frac{-100}{5} = -20$

2. $\frac{25}{-5} = -5$

3. $\frac{-625}{25} = 25$

4. $\frac{121}{11} = 11$

Ex 1.4

1 a $\frac{-30}{10} = -3$

b. $50 \div (-5)$

$\frac{50}{-5} = -10$

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

$\frac{-36}{-9} = +4$

d. $(-49) \div (49)$

$\frac{-49}{49} = -1$

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

$13 \div -1$

$\frac{13}{-1} = -13$

f $0 \div (-12) = 0$

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

$(-31) \div (-31)$

$\frac{-31}{-31} = 1$

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

$\left[\frac{-36}{12}\right] \div 3$

$-3 \div 3 = 1$

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

$Sol = \frac{-1}{-1} = 1$

2. a. $a \div (b+c) + (a \div b) + (a \div c)$

a) $a = 12 \quad b = -4 \quad c = 2$

LHS	RHS
$a \div (b+c)$	$(a \div b) + (a \div c)$
$12 \div (-4+2)$	$12 \div (-4) + 12 \div 2$
$12 \div -2$	$-3 + 6$
$\frac{12}{-2} = -6$	3

HW

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

LHS	RHS
$a \div (b+c)$	$a \div b + a \div c$
$-10 \div (1+1)$	$(-10 \div 1) + (-10)$
$-10 \div 2$	$-10 + (-10)$
5	20

LHS ≠ RHS, Hence verified

3.

a $369 \div 1 = 369$

b $(-75) \div 75 = -1$

c $(-206) \div (-206) = 1$

d $(-87) \div (-1) = 87$

e $(-87) \div 1 = -87$

f $(-48) \div 48 = -1$

g $20 \div (-10) = -2$

h $(-12) \div 4 = -3$

4 Given :-

$a \div b = -3$

$(6, -2) \longrightarrow 6 \div (-2) = -3$

$(9, -3) \longrightarrow 9 \div (-3) = -3$

$(12, -4) \longrightarrow 12 \div (-4) = -3$

$(-3, 1) \longrightarrow -3 \div 1 = -3$

$(15, -5) \longrightarrow 15 \div -5 = -3$

$(18, -6) \longrightarrow 18 \div -6 = -3$

5. Given :-

Temperature at 12 noon = 10° above 0
= +10°

For every hour, the temperature decreases by 2°c = -2°c

Time	Temperature
12 noon	10°
1 o clock	8°
2 o clock	6°
3 o clock	4°
4 o clock	2°
5 o clock	0°
6 o clock	-2°
7 o clock	-4°
8 o clock	-6°
9 clock	-8°
10 o clock	-10°
11 o clock	-12°
12 o clock	-14°

∴ At 9 o clock, the temperature will 8°c below zero ie, -8°c

The temperature at midnight =14° below zero = -14°c

6 Given :-

Every correct Answer: +3 marks
Every incorrect Answer: -2 marks

(i) Radhika scored 20 marks
correct answer = 12
Mark's scored for correct answers = 12 × 3
= 36 marks

36-20 = 16 marks

$\frac{16}{2}$ = 8 were wrong answers.

∴ Radhika got 8 wrong answers.

(ii) Score of Mahimi = -5 marks
correct answers = 7
Marks scored for correct answers = 7 × 3
= 21 marks

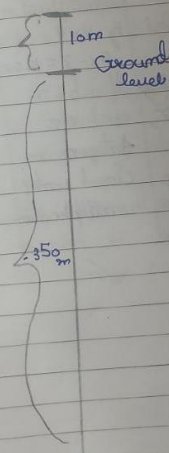
21 - (-5) = 21 + 5 = 26

$\frac{26}{2}$ = 13 were wrong answers

∴ Mahimi got 13 wrong answers

7 Given

An elevator descends into a mineshaft at the rate of 6 m/min
Descend starts from 10 m above the ground level
Distance travelled by an elevator = 10 mt + 350 m
= 360 m



Diagram

PROPERTIES OF INTEGERS

Closure Property of Integers

For every integers $a, b \in Z$
(Where $\in$ belongs to, Z for all the $a, b \in Z$)

Addition	Subtraction	Multiplication	Division
Eg: $-2+2=0 \in Z$	Eg $4-(-4)=8$	Eg $-4\times4=-16 \in Z$	Eg $4\div2=2 \in Z$
2) $-8+8=-16 \in Z$	$\in Z$	$-5\times-3=15 \in Z$	$2\div4=\frac{1}{2} \notin Z$
If $a, b \in Z$,	2) $-5-(-8)=3 \in Z$	If $a, b \in Z$	If $a, b \in Z$,
$a+b \in Z$	If $a, b \in Z$,	$a\times b \in Z$	$a\div b \notin Z$
Integers	$a-b \in Z$	Integers are	Integers are
are closed	Integers are	closed under	not closed
under	closed under	multiplication	under
addition	subtraction		multiplication
✓	✓	✓	X

Observation:-

* The sum of any two integers, will always be an integer, ie if a, and b are any integers, $a+b$ will be an integer.
* The difference of any two integers, will always be an integer, ie if a and b are any integers, $a-b$ will also be an integer
* Any two integers product will be an integer, ie if a, b are integers, $a\times b$ is an integer
* Division doesn't follow closure property as if a and b are any integers, $a\div b$ may or may not be an integer

* Commutative Property of Integers

=> Observations

* Commutative property is only applicable for two arithmetic operations :- Addition and multiplication
* Commutative property of addition : $a+b = b+a$
* Commutative property of multiplication: $ab = ba$

Associative Property of Integers

	Addition	Subtraction	Multiplication	Division
Eg:	$2, 3, 5 \in Z$	$9, 5, 2 \in Z$	$3, -2, 5 \in Z$	$10, 5, 2 \in Z$
	$2+(3+5)\div(2+3)+5$	$(9-5)-2=9-(5-2)$	$(3\times(-2))\times5=3\times(-2\times5)$	$(10\div5)\div2 \neq$
	$5+5 = 2+8$	$4-2 \neq 9-3$	$-6\times5 = 3\times-10$	$10\div(5\div2)$
	$10 = 10$	$2 \neq 6$	$-30 \neq -30$	LHS $\neq$ RHS
	LHS = RHS	LHS $\neq$ RHS	LHS = RHS	
Eg:	$-7, 3, 2 \in Z$	$-6, 2, 4 \in Z$	$-5, -4, 3 \in Z$	$-8, -4, 2 \in Z$
	$(-7+3)+2=-7+(3+2)$	$(-6-2)-4=-6-(2+4)$	$(-6\times-4)\times3=-6\times(-4\times3)$	$(-8\div-4)\div2 \neq$
	$-5+3 = -7+5$	$-8-4 \neq -6-(-2)$	$24\times3 = -6\times-12$	$-8\div(-4\div2)$
	$-2 = -2$	$-12 \neq -6+2$	$72 = 72$	LHS $\neq$ RHS
	LHS = RHS	$-12 \neq -4$	LHS = RHS	
		LHS $\neq$ RHS		
	$a+(b+c)=(a+b)+c$	$(a-b)-c \neq a-(b-c)$	$(a\times b)\times c = a\times(b\times c)$	$(a\div b)\div c \neq a\div(b\div c)$
	✓	X	✓	X

Observation

* The placement of parenthesis doesn't matter when it comes to adding or multiplication

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

Identity Property

* '0' is called the additive identity element.
* Eg:- $0 + (-9) = (-9) + 0$

Multiplicative Identity

* 1 is called the multiplicative identity
* Eg:- $1 \times (-9) = (-9) \times 1$

Distributive Property of Multiplication over Addition

* $a, b, c \in Z$, then

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

Eg:- Verify distributive property of multiplication over addition of integers for $a = 5, b = -10, c = 3$

LHS

$a \times (b+c)$
$5 \times (-10+3)$
5×-7
-35

RHS

$(a \times b) + (a \times c)$
$(5 \times -10) + (5 \times 3)$
$-50 + 15$
-35

LHS = RHS
$\therefore a \times (b+c) = (a \times b) + (a \times c)$
Hence verified

Distributive property of multiplication over addition

* $a, b, c \in z$, then

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

Eg Verify distributive property of multiplication over subtraction of integers for $a = -8, b = 5, c = -3$

LHS

$a \times (b-c)$
$-8 \times 5 - (-3)$
$-8 \times 5 + 3$
-8×8
-64

RHS

$(a \times b) - (a \times c)$
$-8 \times 5 - (-8 \times -3)$
$-40 - 24$
64

LHS = RHS
$\therefore a \times (b-c) = (a \times b) - (a \times c)$
Hence Verified

Problems:-

1) Verify the associative property over addition and multiplication when $a = -7, b = -4, c = 3$

⇒ Associative property over addition

LHS

$(a+b)+c$
$(-7+-4)+7$
$-11+3$
-8

RHS

$a+(b+c)$
$-7+(-4+3)$
$-7+-1$
-8

LHS = RHS
$\therefore (a+b)+c = a+(b+c)$

⇒ Associative Property over Multiplication.

LHS

$(a \times b) \times c$
$(-7 \times -4) \times 3$
28×3

RHS

$a \times (b \times c)$
$-7 \times (-4 \times 3)$
$-7 \times (-12)$

84 = 84

LHS = RHS

Let us Understand this by an activity

Aim: ~~The~~ To verify Associative property under Addition for a = -3, b = 2, c = 5

Procedure = Consider □ = -1

□ = +1

As -1 + (+1) = 0

□ + □ = 0

LHS = a + (b + c)

= -3 + (2 + 5)

= □□□ + (□□ + □□□□□)

= □□□ + □□□□□□□

= □□□□ = +4

RHS : (a + b) + c

= (-3 + 2) + 5

= (□ + □□) + □□□□□

= □ + □□□□□

= □□□□ = +4

LHS = RHS

∴ a + (b + c) = (a + b) + c

Ex 6 In a test (+5) marks are given for every correct Answer and (-2) marks for every incorrect answer

* Radhika answered all the questions & scored 30 marks though she got 10 correct answers

⇒ Jay also answered all the questions and scored (-12) marks though he got 4 correct answers.

How many incorrect answers had they attempted

Sol * Marks given for correct answers = 5

So, marks given for 10 correct answers = 5 × 10 = 50

Radhika's score = 30

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

Marks given for 1 incorrect answer = (-2)

∴ No of incorrect answers = (-20) ÷ (-2) = 10

* Marks given for 4 correct answers = 5 × 4 = 20

Jay's score = -12

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

Marks given for 1 incorrect answer = (-2)

∴ No of incorrect Answers = (-32) ÷ (-2) = 16

Ex 7 A shopkeeper earns a profit of ₹1 by selling one pen and incurs a loss of 40 paise while selling pencils of her old stock

⇒ In a particular month she incurs a loss of ₹5. In this period, she sold 45 pens. How many pencils did she sell in this period.

⇒ In the next month she neither earns a profit or loss. If she sold 70 pens, how many pencils did she sell?

Sol * Profit earned by selling 1 pen = ₹1

Profit earned by selling 45 pens = ₹45

Denoted as = +45

Total loss = ₹5, Denoted as ₹-5

Profit earned + loss incured = Total loss

∴ Loss incured = Total loss - Profit earned

= ₹(-5 - 45) = ₹50 = -5000 paise

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

So, number of pencils sold = (-5000) ÷ (-40) = 125 pencils.

(ii) No profit or loss, Profit earned + Loss = 0

Profit earned = - Loss, Profit = - loss

Profit by selling 70 pens = ₹70

Loss = ₹70 or -7000p

Total pencils = (-7000p) ÷ (-40p) = 175 pencils

Try This

1) $-18 \times -10 \times 9$
$-18 \times -10 \times 9$
180×9
1620

$-20 \times -2 \times -5 \times 7$
$40 \times -5 \times 7$
-200×7
-1400

$(-1) \times (-5) \times -4 \times (-6)$
$[-1 \times -5] \times [-4 \times -6]$
5×24
120

Ex 1.2

1) a) Sum is -7
$(-3) + (-4) = -7$

b) Difference is -10
$-3 - 7 = -10$

c) Sum is 0
$-10 + 10 = 0$

2 a. Difference is 8
$(-10) - (-18) = 8$

b Sum is -5
$-10 + 5 = -5$

c. Difference is -3
$(-2) - (1) = -3$

b i $-5 + -8 = (-8) + (-5)$
ii $-53 + 0 = -53$
iii $17 + (-17) = 0$
iv $[13 + (-12)] + (-7) = 13 + [(-12) + (-7)]$

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

Ex 1.3.

1 a. $3 \times (-1) = -3$
j. $(-3) \times (-6) \times (-2) \times (-1) = 36$

2 a $18 \times (7 + (-3))$ $\quad [18 \times 7] + [18 \times (-3)]$
$18 \times 7 - 3$ $\quad 126 + (-54)$
18×4 $\quad = \quad 126 - 54$
72 $\quad 72$
LHS $\quad = \quad$ RHS
Hence Verified

b. HW

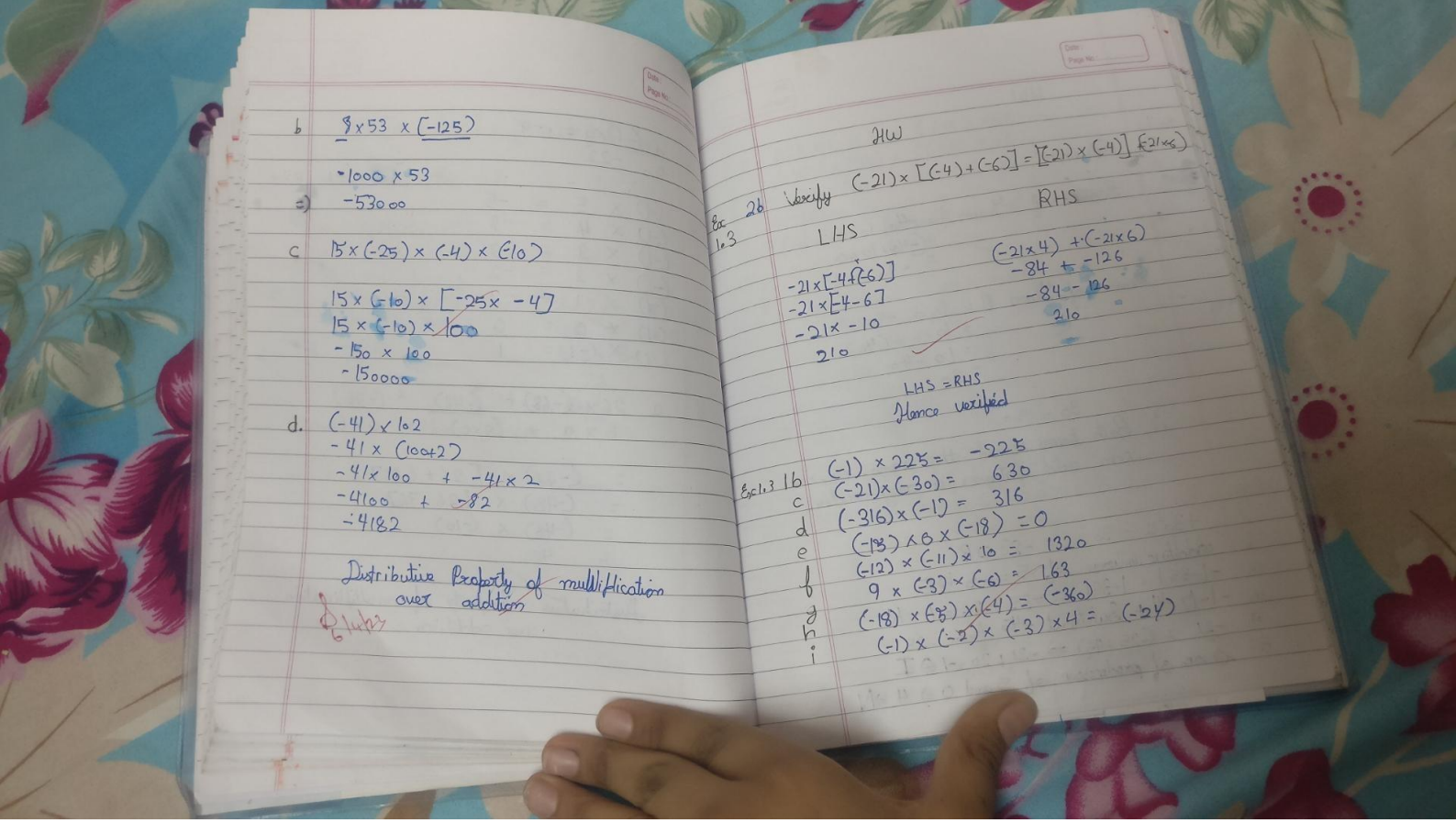
3 a $(-1) \times a = -a$
b -22

4. $(-1) \times 5 = -5$
$(-1) \times 4 = -4$
$(-1) \times 3 = -3$
$(-1) \times 2 = -2$
$(-1) \times 1 = -1$
$(-1) \times 0 = 0$
$(-1) \times (-1) = 1$

5 a $26 \times \frac{(-68)}{b \times a} + \frac{(-48)}{(a \times c)} \times (-36) = a \times (b + c)$

$= (-48) \times [26 + (-36]$
$= (-48) \times [26 - 36]$
$= (-48) \times (-10)$
$= 480$

Distributive property of multiplication over addition



b $8 \times 53 \times (-125)$

$= 1000 \times 53$

$= -53000$

c $15 \times (-25) \times (-4) \times (10)$

$15 \times (-10) \times [-25 \times -4]$

$15 \times (-10) \times 100$

-150×100

-150000

d. $(-41) \times 102$

$-41 \times (100+2)$

$-41 \times 100 + -41 \times 2$

$-4100 + -82$

-4182

Distributive Property of multiplication over addition

HW

Ex 1.3 26 Verify $(-21) \times [(-4)+(-6)] = [(-21) \times (-4)] + [(-21) \times (-6)]$

LHS

$-21 \times [-4+(-6)]$

$-21 \times [-4-6]$

-21×-10

210

RHS

$(-21 \times -4) + (-21 \times -6)$

$84 + 126$

$84 + 126$

210

LHS = RHS

Hence verified

Ex 1.3 16 b $(-1) \times 225 = -225$

c $(-21) \times (-30) = 630$

d $(-316) \times (-1) = 316$

e $(-18) \times 0 \times (-18) = 0$

f $(-12) \times (-11) \times 10 = 1320$

g $9 \times (-3) \times (-6) = 163$

h $(-18) \times (-5) \times (-4) = (-360)$

i $(-1) \times (-2) \times (-3) \times 4 = (-24)$

HW

Ex 1.2

3. Given:-

Scores of Team A = -40, 10, 0
= (-40) + 10 + 0
= -30

Score of Team B = 10, 0, -40
= 10 + 0 + (-40)
= 10 - 40
= 30

30 = 30

∴ Both teams scored the same. Yes, we can add integers in any order.

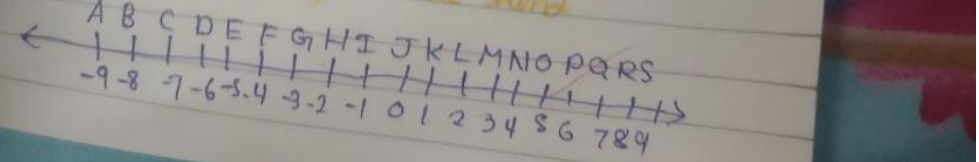
20/03/23 Hw

1. $+30^\circ C - 38^\circ C = -8^\circ C \ominus B$
2. Additive inverse of $5 = -5 \ominus E$
3. $-|-35| + |-36| = -35 + 36 = 1 = K$
4. $-|-17-41|$ + Subtract -45 from -25
   $\Rightarrow -21 + (-25+45) \Rightarrow -21 + 20 = -1 \ominus I$
5. Sum of additive inverse of 5 and $0 \Rightarrow 4 \ominus N$

   b $-6 \ominus D$

6. $(-25) + (-55) + 29 + 45$
   $-25 + -55 + 29 + 45$
   $-80 + 74$
   $-6 \Rightarrow D$

Finally we got "the kind"



e $625 \times (-35) + (625) \times 65$
$(-625) \times (35) + (625) \times 65$
$\Rightarrow -625 \times 100$
$\Rightarrow -62500$
Distributive property of '×' over '+'

f $7 \times (50 - 2)$
$\Rightarrow a \times b - c = a \times b - a \times c$
$\Rightarrow (7 \times 50) - 7 \times 2$
$\Rightarrow 350 - 14$
$\Rightarrow 336$

g $(-17) \times (-29)$
$\Rightarrow 17 \times 29$
$\Rightarrow 17 \times (30 - 1)$
$\Rightarrow 17 \times 30 - 17 \times 1$
$\Rightarrow 510 - 17$
$\Rightarrow 493$
DP of × over +

h $(-57) \times (-19) + 57$
$\Rightarrow 57 \times 19 + 57 \times 1$
$\Rightarrow 57 \times 19 + 1$
$\Rightarrow 57 \times 20$
$\Rightarrow 1140$

DP over of × over +

6. Given -

The room temperature will be decreased from 40°c at the rate of 5°c every hour.
Temperature after 10 hours =
$40 - 10 \times 5°c = -50°c$

7. Total Questions = 10
correct = +5m
Incorrect = -2m

i) mohan
ca - 4 = $4 \times 5 = 20$
ia - 6 = $6 \times -2 = -12$

ii) krishna :-
ca - 5 = $5 \times 5 = 25$
ia - 5 = $5 \times -2 = -10$
$-10 + 25 = 15$ m

iii) heena :-
ca = 2 = $2 \times 5 = 10$
ia = 5 = $5 \times -2 = -10$ = 0

9. Given

Profit on white cement bag - ₹8
Loss on gray cement = ₹5

(i) Profit on 3000 bags of white cement = 8×3000
= ₹24000

Loss on 5000 bags of gray cement = 5×5000
= ₹25000

Total loss = 25000 - 24000 = ₹1000

(ii) No. of gray cement bags sold = 6400
Loss on 6400 bags of gray cement = 5×6400
= 32000

No. of white cement bags sold = $\frac{32000}{8} = 4000$

9. a) $-3 \times -9 = 27$
(HW) b. 56
c -25
d 132

Simplification of Brackets

* Order of Brackets = [{(→)}]

* B - Brackets
O - Of
D - Division
M - Multiplication
A - Addition
S - Subtraction

HOTS

1) Find the value of

Q $\frac{-1^{(101)} \times (-1)^{100} + (-1)^{99}}{1}$

Ans $\Rightarrow \frac{-1 \times 1 + 1}{1}$

$\Rightarrow \frac{-1+1}{1} = \frac{0}{1} = 0$

2) Evaluate : $[\{(-15+5) \times 2 + 8\} - 32 \div 8] - (-7)$

$\Rightarrow [\{-10 \times 2 + 8\} - 32 \div 8] + 7$
$\Rightarrow [\{-20 + 8\} - 32 \div 8] + 7$
$\Rightarrow [-12 - 32 \div 8] + 7$
$\Rightarrow [-12 - 4] + 7$
$\Rightarrow -16 + 7$
$\Rightarrow -9$

3. Find the side of a square whose area is $10 - 3 \times (-2)$ sq cm

Given - Area = $10 - 3 \times (-2)$
$= 10 + 6$
$= 16$ sq cm

Side = $\sqrt{16} = \sqrt{4 \times 4} = 4$

4. Find the perimeter of a sq whose side is $-3 \times (1-3)$ cm

Ans Given

Side = $-3 \times (1-3)$
$= -3 \times -2$

= 6 cm

Perimeter = 8 × 4
= 6 × 4
= 24

5. Simplify

a) $14-[3+\{8\div(5-3\text{of }2+3)\}]$
$14-[3+\{8\div(5-3\times6-5-6+3)\}]$
$14-[3+\{8\div(\ 2\ )\}]$
$14-[3+\{8\div2\}]$
$14-[3+\ 4\ ]$
$14-7$
7

12/4/23

b. $6-[6-\{6-(6-5-3)\}]$
$6-[6-\{6-(-2)\}]$
$6-[6-\{6+2\}]$
$6-[6-8]$
$6-(-2) = 6+2 = 8$

c $49\div[49+\{49-(49+49-49)\}]$
$49\div[49+\{49-(49)\}]$
$49\div[49+\{49-49\}]$
$49\div[49+\{0\}]$
$49\div49$
1

6 At sunrise, the outside the temperature was 1° before 0. By lunch time, the temperature rose by 17° and then fell by 4° by night. What was the temperature by the end of the day.

[A7] 7th question answer

Let the 3 consecutive integers be $x, x+1, x+2$

$x + x+1 + x+2 = 60$
$3x + 3 = 60$
$3x = 57$
$x = \frac{57}{3} = 19$

$\therefore$ The 3 consecutive integers are :-
$x, x+1, x+2 = 19, 19+1, 19+2$
$\Rightarrow 19, 20, 21$

A6 (6th question answer)

Temperature at Sunrise = 1°c below
$= -1°c$

Temperature at lunch time $= +17°c$
Temperature at the end of the day $= -1°c + 17°c + -4°c$
$= 16°c - 4°c$
$= 12°c$

7 (7th question) The sum of the least and the greatest of 3 consecutive integers is 60. What are values of the integers.
(Answer at previous page)

8 Solve using distributive property

a $-486 \times (-36) + (-486) \times (-64)$
$-486 \times (-36 + 64)$
-486×-100
48600

b $23789 \times 99 - (-23789)$
$23789 \times 99 + 23789 \times 1$
$23789 \times 99 + 1$
23789×100
2378900

c 9269×999
$9269 \times (1000 - 1)$
$9269 \times 1000 - 9269 \times 1$
$9269000 - 9269$
9259731

d 6578×105
$6578 \times (100 + 5)$
$6578 \times 100 + 6578 \times 5$
$657800 + 32890$
690690

30/4/23