7/4/19

Chapter - 1

Integers

Exercise 1.1

1 a. If x and y ---------- y.

Ans = $x + y = y + x$

b. Verify ---------- 44 and -35.

Ans = $44 - 35 = -35 + 44$

$9 = 9$

Verified

2 a. Verify that $23 + (14 + 52) = (23 + 14) + 52$

Ans = $23 + (14 + 52) = (23 + 14) + 52$

$23 + 66 = 37 + 52$

$89 = 89$

Verified

b. Write the associative property of addition of integers taking a, b, and c as three integers.

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

3a) What is the additive identity of -6?

Ans= 0

b) Which integer is its own additive identity?

Ans= 0

4. Write the additive inverse of:

a) (-212)

= +212

b) 666

= (-666)

5a) Write down the integers, if any, that do not have inverse under addition.

Ans= No such integer.

b) Write down all integers that are their own inverses under addition

Ans= 0.

6- Give a counter example to show that integer are not commutative under subtraction using:

a) 23 and -18

Ans= 23-(-18) ≠ -18-23

23+18 ≠ -41

41 ≠ -41

b) 38 and 54

Ans= 38-54 ≠ 54-38

-16 ≠ 16

7a) Verify that: (23-17)-9 ≠ 23-(17-9)

Ans= (23-17)-9 ≠ 23-(17-9)

6-9 ≠ 23-7

-3 ≠ 16 Verified

b) Show that the associative property does not hold for integers under subtraction.

(15-17)-6 ≠ 15-(17-6)

-2-6 ≠ 15-9

-8 ≠ 6

8- Give examples of:-

a) One positive and one negative number whose sum is -18.

Ans= -19 and 1

b) Two negative integers whose sum is

Ans= -20 and -1

c) One negative and one positive integer whose difference is -9

Ans= -1 and +8

d) Two negative numbers whose difference is 14

Ans= -1 and -15.

is -117.

10- The sum of two integers ~~whose differ~~ If one of the integers is 86, find the other.

Sum of two integers = -117
One of them = 86
Other integer = -117 - 86
= -202

11- A ---------- bag.

Initially, Marbles in bag = 90
John took marbles = 38
Left marbles in bag = 90 - 38
= 52
Let Amit put marbles in bag = x
According to question -

52 + x = 90 + 15
⇒ 52 + x = 105

⇒ x = 105 - 52
⇒ x = 53

Amit put 53 marbles in the bag.

12- The ---------- evening

Temperature at hill station = -4°C
Rising in temperature = 6°C
Falling in temperature = 3°C
Final temperature at hill station = (-4 + 6 - 3)°C
= (-7 + 6)°C
Ans. = -1°C

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Exercise 1.2

1 a) Take any two integers and verify the commutative property of multiplication for integers.

Ans: Let, $a = 4$ and $b = 2$

$4 \times 2 = 2 \times 4$

$\Rightarrow 8 = 8$

Verified

b) Give a counterexample to justify that division is not commutative for integers.

Ans: Let, $a = 4$ and $b = 2$

$4 \div 2 \neq 2 \div 4$

$\Rightarrow 2 \neq \frac{1}{2}$

4 a) State the associative property of multiplication for integers taking a, b, c as any three integers.

Ans: Let, $a = 4$, $b = 2$ and $c = 8$

$(4 \times 2) \times 8 = 4 \times (2 \times 8)$

$\Rightarrow 8 \times 8 = 4 \times 16$

$\Rightarrow 64 = 64$

b) Give a counterexample to show that division is not associative for integers.

Ans: Let, $a = 4$, $b = 2$ and $c = 8$

$(4 \div 2) \div 8 \neq 4 \div (2 \div 8)$

$\Rightarrow 2 \div 8 \neq 4 \div \frac{1}{4}$

$\Rightarrow \frac{1}{4} \neq 4 \times \frac{1}{4}$

$\Rightarrow \frac{1}{4} \neq \frac{1}{16}$

5 a) Using 12, -4, and 6, prove the distributivity of division over subtraction.

Ans: Over addition :-

$12 \times (-4 + 6) = 12 \times (-4) + 12 \times 6$

$\Rightarrow 12 \times 2 = -48 + 72$

$\Rightarrow 24 = 24$

Over subtraction :-

$12 \times (-4 - 6) \neq 12 \times (-4) - 12 \times (-6)$

$\Rightarrow 12 \times (-10) = -48 - 72$

$\Rightarrow -120 = -120$

b) Give a counterexample using -9, 3 and 6 to check if division is distributive.

Ans: $-9 \div (3 + 6) \neq -9 \div 3 + -9 \div 6$

$\Rightarrow -9 \div 9 \neq -3 + -9 \div 6$

$\Rightarrow -1 \neq -3 + 1.5$

$\Rightarrow -1 \neq -4.5$

6. Evaluate :

a) $123 \times (-32)$

$= -3936$

b) $(-41) \times 39$

$= -1599$

c) $(-52) \times (-9)$

$= 468$

d) 7×1

$= 7$

e) 18×0

$= 0$

f) $321 \times 1 - 61 \times 0$

$= 321 \times 1 - 0$

$\Rightarrow 321 - 0$

$\Rightarrow 321$

g) $-414 \div 37$

$= -12$

h) $576 \div (-32)$

$\Rightarrow -18$

i) $-799 \div (-17)$

$\Rightarrow 47$

j) $(-32+8) \div (-3+6)$

$\Rightarrow -24 \div (-3)$

$\Rightarrow +8$

k) $(-28+7) \times \{5-(-4)\}$

$\Rightarrow -21 \times \{5+4\}$

$\Rightarrow -21 \times 9$

$\Rightarrow -189$

l) $[(-3) \times (7)] - [(-1) \times 2]$

$\Rightarrow [-21] - [-14]$

$\Rightarrow -21 + 14$

$\Rightarrow -7$

m) $(-15-19) \div (-12+10)$

$\Rightarrow -34 \div (-2)$

$\Rightarrow +17$

n) $(-33+8) \times [-5-(-3)]$

$\Rightarrow -25 \times (-2)$

o) $[(-5)\times 4]-[-14-(-6)]$

$\Rightarrow -20+8$

$\Rightarrow -12$

p) $(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)$

$\Rightarrow +64$

q) $(2)\times(1)\times(1)\times(1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)$

$\Rightarrow -1$

8- Evaluate in a way in which the multiplication process is simplified. Also, state the properties of multiplication used in the process.

a) 376×52

$\Rightarrow 376\times(50+2)$

$\Rightarrow 376\times 50+376\times 2$

$\Rightarrow 18800+752$

$\Rightarrow 19552$. Distributive property is used (over addition).

b) 76×98

$\Rightarrow 76\times(100-2)$

$\Rightarrow 76\times 100-76\times 2$

$\Rightarrow 7600-152$

$= 1448$

9- Evaluate :

a) $(75-68)-[23-(51-45)]$

$\Rightarrow 7-[23-6]$

$\Rightarrow 7-17$

$\Rightarrow -10$

b) $[23+(7-11)]+[(11-5)-(16+6)]$

$\Rightarrow [23+-4]+[6-22]$

$= 19+-16$

$= 3$

c) $(19-6)-[17-(34-28)-17]$

$= 13-[17-6-17]$

$= 13+6$

$= 19$

d) $44-(34-40)-[(27-32)-6]$

$= 44+6-[-5-6]$

$= 50+11$

$= 61$

10- A ---------- correctly?

No. of attempted q. = 7

Let no. of correct ans. = x

No. of wrong ans. = 7 - x

ATQ

o) $[(-5)\times 4]-[-14-(-6)]$

$\Rightarrow -20+8$

$\Rightarrow -12$

p) $(-2)\times(-2)\times(-2)\times(-2)\times(-2)\times(-2)$

$\Rightarrow +64$

q) $(1)\times(1)\times(1)\times(1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)\times(-1)$

$\Rightarrow -1$

8- Evaluate in a way in which the multiplication process is simplified. Also, state the properties of multiplication used in the process.

a) 376×52

$\Rightarrow 376\times(50+2)$

$\Rightarrow 376\times 50+376\times 2$

$\Rightarrow 18800+752$

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$= 3$

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$= 13-[17-6-17]$

$= 13+6$

$= 19$

d) $44+(34-40)-[(27-32)-6]$

$= 44+6-[-5-6]$

$= 50+11$

$= 61$

10- A ---------- correct

No. of attempted q = 7

Let no. of correct ans. = x

No. of wrong ans. = 7 - x

ATQ

$\Rightarrow x \times 2 + (7-x) \times 1 = 8$

$\Rightarrow 2x + (7-x) = 8$

$\Rightarrow 2x - 7 + x = 8$

$\Rightarrow 3x - 7 = 8$

$\Rightarrow 3x = 8 + 7$

$\Rightarrow 3x = 15$

$\Rightarrow x = \frac{15}{3}$

$\Rightarrow x = 5$

Hence, number of correct ans = 5

11- Poonam ---------- cousin?

Chocolates Poonam had to deliver = 20
She will get reward for each chocolate = ₹3

Fine for eating 1 chocolate = ₹6
She ate chocolates = 5
Fine for eating 5 chocolates = ₹6 × 5 = ₹30

She will get reward = (20 − 5) × ₹3
= 15 × ₹3
= ₹45

Now she will get total money = ₹45 − ₹30
= ₹15 Ans.

12- Shikha ---------- classmates?

Pencils Shikha have = 42
She gives to each student = 5
She gave pencils to students = 7
No. of pencils she gave = 7 × 5 = 35

Remaining pencils = 42 − 35 = 7 Ans.

13- Arun ---------- treat?

Friends opted for ice creams = 4
Cost of 1 ice cream = ₹12
Total cost of 4 ice creams = ₹12 × 4 = ₹48

Friends chose juice = 5
Cost of juice = ₹8
Total cost of 5 juices = ₹8 × 5
= ₹40

Total cost of all desserts = ₹40 + ₹48
= ₹88 Ans.

Sol 15/4