

Mathematics

Chapter 6: Integers

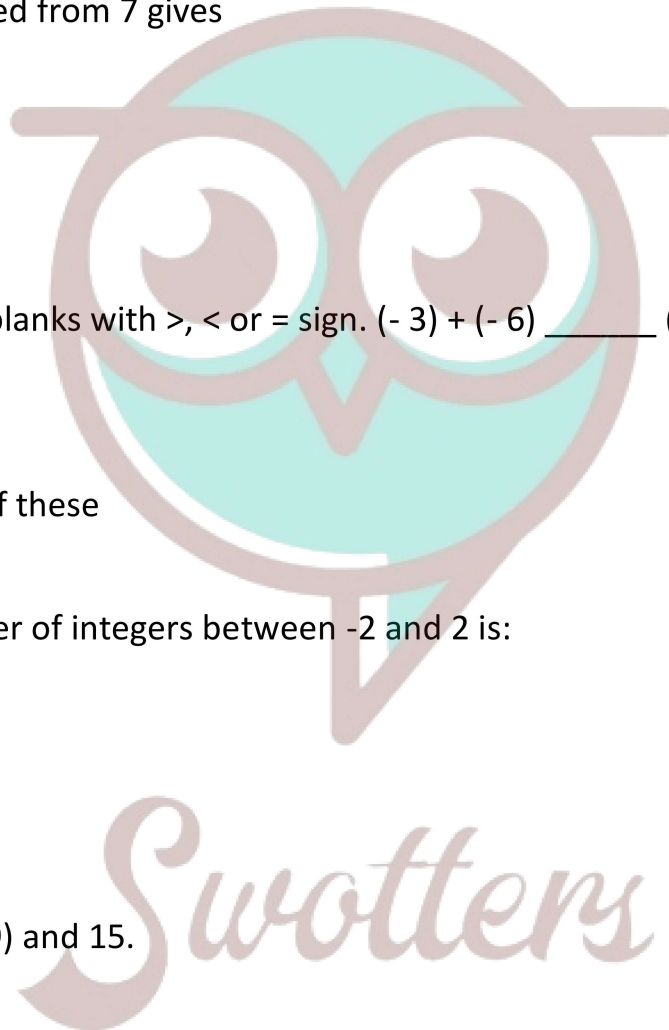


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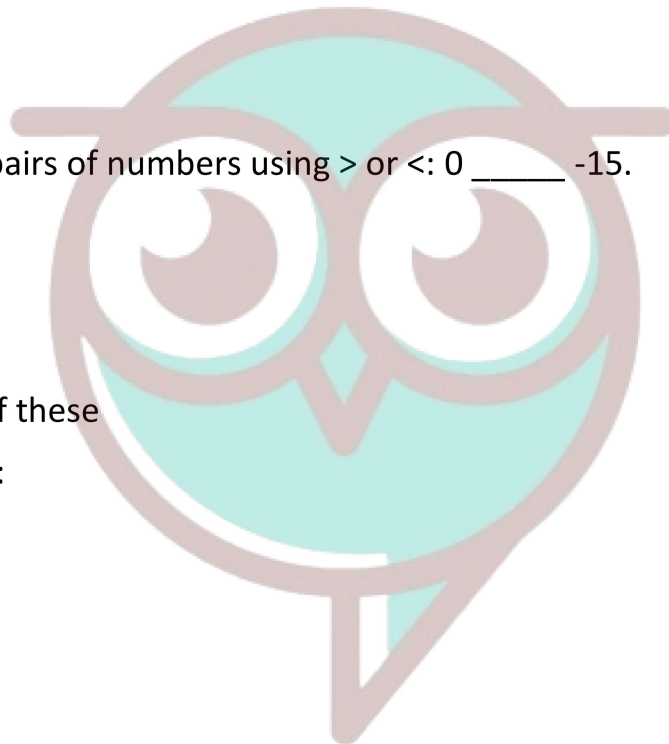
Important Questions

Multiple Choice questions:

- Write numbers with appropriate signs: 40°C below 0°C temperature.
 - 30
 - 40
 - 40
 - None of these
- 2 subtracted from 7 gives
 - 5
 - 5
 - 9
 - 9
- Fill in the blanks with $>$, $<$ or $=$ sign. $(-3) + (-6)$ _____ $(-3) - (-6)$
 - $<$
 - $>$
 - None of these
 - $=$
- The number of integers between -2 and 2 is:
 - 3
 - 5
 - 4
 - 2
- Sum of (-9) and 15.
 - 90
 - 6
 - 6
 - 20
- 0 is:
 - a positive integer
 - a negative integer
 - neither positive nor negative
 - none of these



7. What is opposite of '50 km of south'?
- A. 50 km of east
 - B. 50 km of west
 - C. 50 km of north
 - D. None of these
8. Sum of -30 and -12 is:
- A. -42
 - B. 42
 - C. -18
 - D. 18
9. Compare pairs of numbers using $>$ or $<$: 0 _____ -15 .
- A. $<$
 - B. $=$
 - C. $>$
 - D. None of these
10. $10 - (-6)$ is:
- A. 16
 - B. 4
 - C. 60
 - D. 6
11. What must be added to -35 to get 35 ?
- A. 40
 - B. 70
 - C. 0
 - D. 100
12. The absolute value of -10 is:
- A. -10
 - B. 10
 - C. -11
 - D. -9
13. Absolute value of -11 is:
- A. 0
 - B. 11



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- C. 1
D. -11
14. Product of -140 and +8 is:
A. 1120
B. 3200
C. -1120
D. -3200
15. $(-4) + (+3) = \underline{\hspace{2cm}}$
A. 7
B. -1
C. 6
D. None of these

Match The Following:

	Column I		Column II
1.	10 steps to the right	A.	1000
2.	10 km below sea level	B.	1000
3.	Deposit Rs. 1000 in a bank	C.	10
4.	Spending Rs. 1000	D.	10

Fill in the blanks:

- When we subtract -10 from 18 we get _____.
- _____ is an integer which is neither positive nor negative.
- $272 - 198 - \underline{\hspace{2cm}} = 0$.
- $15 + \underline{\hspace{2cm}} = 0$

True /False:

- If a and b are any two integers such that $a > b$, then $-a > -b$.
- If the sum of an integer and its opposite is zero, then they are called additive inverses of each other.
- The negative of 0 is -0.
- The sum of positive and negative integers is always negative.

Very Short Questions:

- Write four negative integers less than -20.

2. Write all the integers between -8 and -15. (Write them in the increasing order.)
3. Find the solution of the following: $(-9) + (+13)$
4. Subtract: $(-20) - (-13)$
5. Find the value of: $(-7) + (-9) + 4 + 16$
6. Using number line, add the following integers: $9 + (-6)$.
7. The temperature on a certain morning is -11°C at 5 a. m. If the temperature drops 3 degree at 6 a.m. and rises 5 degree at 8 a.m. and again drops 3 degree at 9 a.m. What is the temperature at 9 a.m.?
8. Represent the following on number line:
 - (a) -5
 - (b) 4
9. Identify the negative integers from the given numbers.
 $-5, 3, 0, 5, -6, 7, 3, 4, -4, -7$
10. What is the additive identity of -20 ?

Short Questions:

1. Write the following integers in their increasing order.
 $-3, 0, -6, 5, -4, 6, 3, -8$
2. Comparing the following pairs of number use $>$ or $<$.
 - (a) $0 \square -6$
 - (b) $-10 \square -2$
 - (c) $-100 \square 100$
 - (d) $2 \square -2$
3. Write all the integers between the following pair of integers:
 - (a) 0 and -4
 - (B) -5 and 5
 - (c) -8 and -13
 - (d) 3 and 6
4. Find the solution of the following additions using number line:
 - (a) $(-3) + 5$
 - (B) $(-5) + (-2)$
5. Find the sum of the following integers:
 - (a) $(-8) + (+5) + (-3) + (-2)$
 - (B) $(-7) + (-9) + (+4) + (+3)$

Long Questions:

1. Ramesh thinks of an integer. He subtracts 12 from it and gets the result as -6 . What was the integer he thought of?
2. Determines:
 - (a) $|5| - |-3|$
 - (b) $|5 - 6| + |-1|$
 - (c) $-7 + |-3|$
 - (d) $|5| + |-12|$
3. If $*$ is an operation such that for two integers p and q , $p * q = p + q - 2$, then find:
 - (a) $6 * 2$
 - (b) $(-2) * (-3)$
 - (c) $(-2) * (4)$
 - (d) $(+3) * (-1)$

Assertion and Reason Questions:

1.) Assertion (A) – David and Mohan have started walking from zero position in opposite directions. Let the steps to the right of zero be represented by '+' sign and to the left of zero represented by '-' sign. If Mohan moves 5 steps to the right of zero it can be represented as $+5$ and if David moves 5 steps to the left of zero it can be represented as -5 .

Reason (R) – a movement to the right is made if the number by which we have to move is positive and a movement to the left is made if the number by which the token has to move is negative.

- a) Both A and R are true and R is the correct explanation of A
- b) Both A and R are true but R is not the correct explanation of A
- c) A is true but R is false
- d) A is false but R is true

2.) Assertion (A) – The first numbers to be discovered were natural numbers i.e. $0, 1, 2, 3, 4, \dots$

Reason (R) – this collection of numbers is known as Integers

- a) Both A and R are true and R is the correct explanation of A
- b) Both A and R are true but R is not the correct explanation of A
- c) A is true but R is false
- d) A is false but R is true

An owl logo with large eyes and a beak, rendered in a light teal and brown color scheme. The text 'ANSWER KEY -' is centered over the owl's face.

ANSWER KEY -

Multiple Choice questions:

1. C. -40
Explanation: below means less than 0 so it is -40
2. B. 5
Explanation: $7 - 2 = 5$
3. A. $<$
Explanation: $-3 - 6 = -9$
 $-3 - (-6) = -3 + 6 = 6 - 3 = 3$
so $-9 < 3$
4. A. 3
Explanation: integers between -2 and 2 are $-1, 0, 1$ so 3 integers
5. C. 6
Explanation: $-9 + 15 = 15 - 9 = 6$
6. C. neither positive nor negative
7. C. 50 km of north
8. A. -42
9. C. $>$
10. A. 16
11. B. 70
12. B. 10
13. B. 11

14. C. -1120

15. B. -1

Match The Following:

	Column I		Column II
1.	10 steps to the right	C.	10
2.	10 km below sea level	D.	10
3.	Deposit Rs. 1000 in a bank	B.	1000
4.	Spending Rs. 1000	A.	1000

Fill in the blanks:

- When we subtract -10 from 18 we get **28**.
- 0** is an integer which is neither positive nor negative.
- $272 - 198 - \underline{74} = 0$.
- $15 + \underline{-15} = 0$

True /False:

- False
- True
- False. zero is neither negative nor positive
- False

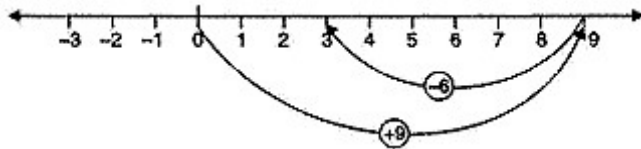
Very Short Answer:

- Four negative integers less than -20 are -21, -22, -23 and -24.
- The integers between -8 and -15 in increasing order are -14, -13, -12, -11, -10 and -9.
- $(-9) + (+13)$
 $= (-9) + (+9) + (+4)$
 $= 0 + (+4) = +4$
- $(-20) - (-13)$
 $= (-20) + (\text{additive inverse of } -13)$
 $= (-20) + (13) = -7$
- $(-7) + (-9) + 4 + 16$
 $= (-16) + 20$
 $= (-16) + 16 + 4$

$= 0 + 4 = 4$

6. On the number line we first move 9 steps to the right from 0 reaching 9 and then we move 6 steps to the left of 9 and reach 3.

Thus, $9 + (-6) = 3$



7. Temperature at 5 a.m. = -11°C

Temperature decreased at 6 a.m. = $3^{\circ}\text{C} = -3$

Temperature raised at 8 a.m. = $5^{\circ}\text{C} = +5$

Temperature decreased at 9 a.m. = $3^{\circ}\text{C} = -3$

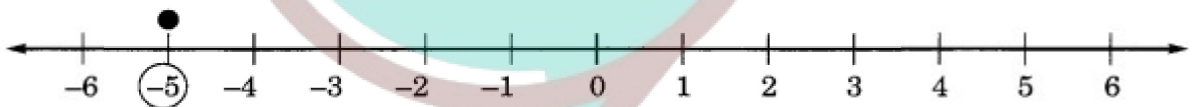
Final temperature at 9 a.m. = $(-11) + (-3) + (+5) + (-3)$

$= -11 - 3 + 5 - 3$

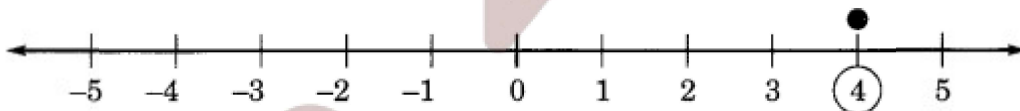
$= -17 + 5$

$= -12^{\circ}\text{C}.$

8. (a) -5



- (b) 4



9. Negative integers are $-5, -6, -4$ and -7 .

10. Additive identity of -20 is 20.

Short Answer:

1. The required increasing order is:

$-8, -6, -4, -3, 0, 3, 5, 6$

2. (a) $0 > -6$

(b) $-10 < -2$

(c) $-100 < 100$

(d) $2 > -2$

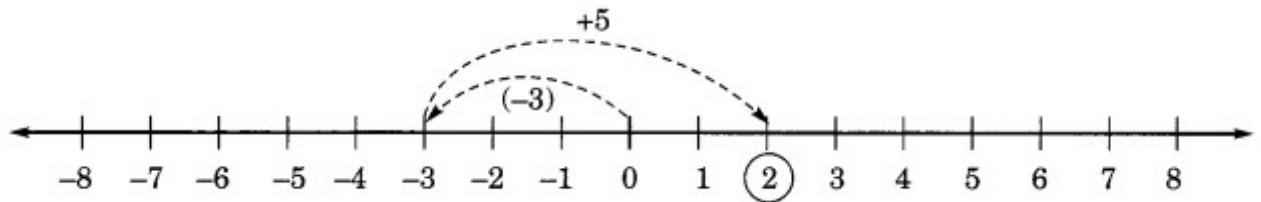
3. (a) Integers between 0 and -4 are: $-3, -2, -1$

(B) Integers between -5 and 5 are: $-4, -3, -2, -1, 0, 1, 2, 3, 4$.

(c) Integers between -8 and -13 are: $-12, -11, -10, -9$

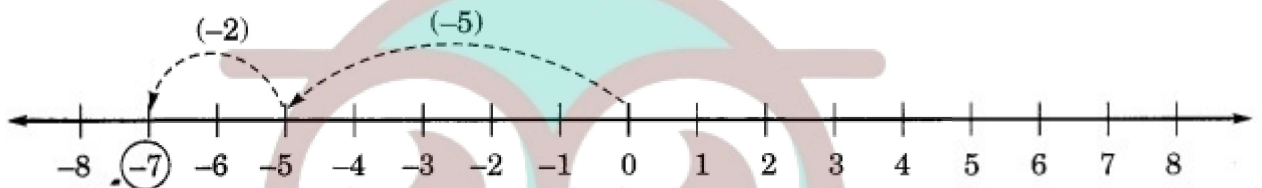
(d) Integers between 3 and 6 are: 4 and 5

4. (a) $(-3) + 5$



$$\therefore (-3) + 5 = 2$$

(B) $(-5) + (-2)$



$$\therefore (-5) + (-2) = (-7)$$

5. (a) $(-8) + (+5) + (-3) + (-2)$

$$= (-8) + (+5) - (3 + 2)$$

$$= (-8) + (+5) - (5)$$

$$= (-8) + 0 = -8 \quad [\because (+a) + (-a) = 0]$$

(b) $(-7) + (-9) + (+4) + (+3)$

$$= (-7) + (-9) + (4 + 3)$$

$$= (-7) + (-9) + (+7)$$

$$= (-7) + (+7) + (-9)$$

$$= 0 + (-9) = -9 \quad [\because (-a) + (+a) = 0]$$

Long Answer:

1. The given sum can be written as under.

$$(\quad) - (12) = -6$$

The required integer is $12 - 6 = 6$.

2. (a) $|5| - |-3| = 5 - 3 = 2 \quad [\because |a| = a \text{ and } |-a| = a]$

$$(b) |5 - 6| + |-1| = |-1| + |-1| = 1 + 1 = 2$$

$$(c) -7 + |-3| = -7 + 3 = -4$$

$$(d) |5| + |-12| = 5 + 12 = 17$$

3. (a) Given that: $p * q = p + q - 2$

$$\Rightarrow 6 * 2 = 6 + 2 - 2 = 6 + 0 = 6$$

Thus, $6 * 2 = 6$.

(b) Given that: $p * q = p + q - 2$

$$\Rightarrow (-2) * (-3) = (-2) + (-3) - 2$$

$$= -5 - 2 = -7.$$

Thus, $(-2) * (-3) = -7$.

(c) Given that: $p * q = p + q - 2$

$$\Rightarrow (-2) * (4) = (-2) + (4) - 2 = 2 - 2 = 0.$$

Thus, $(-2) * (4) = 0$.

(d) Given that $p * q = p + q - 2$

$$\Rightarrow (+3) * (-1) = (+3) + (-1) - 2 = 2 - 2 = 0$$

Thus, $(+3) * (-1) = 0$.

Assertion and Reason Answers:

- 1) a) Both A and R are true and R is the correct explanation of A
- 2) d) A is false but R is true



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