

1. INTEGERS AND ①
ABSOLUTE VALUES
Class: VI, MATHEMATICS
FOUNDATION⁺, SOLUTIONS
2025-26

TEACHING TASK, JEE MAINS

01. Conceptual.

Ans: B

02. $|x+3|=2$

$$\Rightarrow x+3 = \pm 2$$

$$\Rightarrow x+3=2 \quad \text{or}$$

$$\Rightarrow x=-1 \quad \text{or}$$

$$x+3=-2$$

$$x=-5$$

Ans: C

03. $|x|=|y|$

$$\Rightarrow x = \pm y$$

$$\Rightarrow x=y \quad \text{or} \quad x=-y$$

Ans: B

04. Conceptual.

Ans: B

05. $|1-6|=|-5|=5$

Ans: B

06. $n \rightarrow \text{odd}, \quad n+1 \rightarrow \text{Even}$

$$|n+1| = |\text{Even}| = \text{Always Even}$$

Ans: B



07.

$$|x-2|=3$$

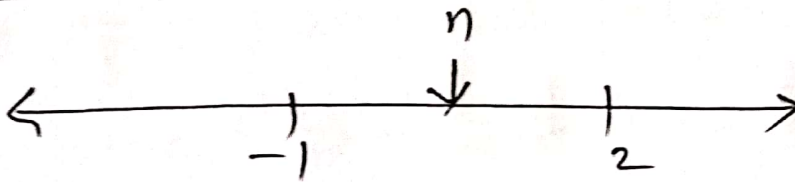
$$\Rightarrow x-2 = \pm 3$$

$$\Rightarrow x-2=3 \text{ or } x-2=-3$$

$$\Rightarrow x=5 \text{ or } x=-1$$

Ans: C

08



$$n \in \{0, 1\}$$

Ans: B

09

Conceptual

Ans: B

10

Conceptual

Ans: B

11

$$|2 + |-12|| = |2 + 12| = |14| = 14$$

$$2 + |-3| = 2 + 3 = 5$$

$$\therefore 14 > 5$$

Ans: B

12

$$7 - 6 + 8 = 9$$

Ans: B

13

Conceptual

Ans: C

14

$$ab < a+b$$

~~$$ab < a+b$$~~ let $a=1$

$$b < 1+b, \text{ Always true}$$

Hence, one of the numbers must be 1

let $a=2$

$$2b < 2+b$$

(not always true)

Ans: A

15. let $n = 2$
 $n^3 = 2^3 = 8$, Even

(ii) $n^2 = 2^2 = 4$, Even

Ans: C

16 let $n = 3$, $2n+1 = 2 \cdot 3 + 1 = 7$, prime no.

$n = 4$ $2n+1 = 2 \cdot 4 + 1 = 9$, not prime no.

$n = 5$ $2n+1 = 2 \cdot 5 + 1 = 11$, prime no.

$n = 1$ $2n+1 = 2 \cdot 1 + 1 = 3$, prime no.

Ans: D

Smallest value $n = 1$

17 $n = 1$, $2n-1 = 2 \cdot 1 - 1 = 1 > 0$

$n = 2$ $2n-1 = 2 \cdot 2 - 1 = 3 > 0$

$n = 3$ $2n-1 = 2 \cdot 3 - 1 = 5 > 0$

$n = 0$ $2n-1 = 2 \cdot 0 - 1 = -1 < 0$

Ans: D

18 $x > 10$

$\Rightarrow x - 10 > 0$

$\Rightarrow |x - 10| > 0$

Ans: A

19 Given $-61, -36, 3, -3, 6, -6$

$6 > 3 > -3 > -6 > -36 > -61$

Ans: C

20. Given $-3, 3, -9, 10, -1$

$-9 < -3 < -1 < 0 < 3 < 10$

Ans: C

JEE ADVANCED LEVEL

(4)

01. Conceptual

Ans: A, C

02. Conceptual

Ans: A, B, C, D

03. Irrational numbers = $\pi, \sqrt{2}$

Ans: C, D

04. Conceptual

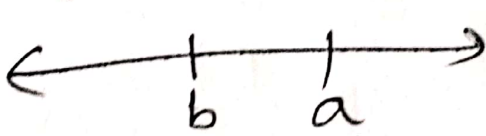
Ans: A, B, C

05. Statement I: Conceptual (True)

Statement II: $|-8| < |-7|$
 $8 < 7$ (False)

Ans: C

06. Statement I:  (True)

Statement II:  (True)
~~(False)~~

Ans: A

07. Assertion: Conceptual (True)

Reason: Conceptual (True)

Ans: A

08. Assertion: $|-1| = 1$ But $1 \neq 2$ (False)

Reason: Conceptual (True)

Ans: D

09.

B) 3, 7, 11

Ans: B

10

Conceptual

Ans: A

11

 $| -a | = a = -x$, here
 $\Rightarrow x < 0$

Ans: A

12

 $|y| = z \Rightarrow \cancel{y = z} \Rightarrow z > 0$

Ans: B

13

 $| -5 | | 11 | = 5 \times 11 = 55$

Ans: B

14

 $|a| = 6 \Rightarrow a = \pm 6$
 $\therefore 6 + (-6) = 0$

Ans: 0

15

prime numbers $\rightarrow 11, 13, 17, 19$ (Four)

Ans: 4

16

0

Ans: 0

17

 $(+a) + (-a) = 0$

Ans: 0

18

- a) 4 $\rightarrow$ Composite number divisible by 1, 2, 4 (q)
 b) 7 $\rightarrow$ prime numbers with two divisors (p)
 c) 9 $\rightarrow$ Composite number divisible by 1, 3, 9 (r)
 d) 11 $\rightarrow$ prime number greater than 10 (s)

Ans: q, p, r, s

19

6

a) $|-25| = 25$ (r)

b) $|457| = 457 > -457$ (p)

c) $|0| = 0$ (t)

d) ~~$|-110| = 110$~~ $-110 < -10$ (q)

Ans: r, p, t, q

LEARNERS TASK

CUA's

01. Conceptual

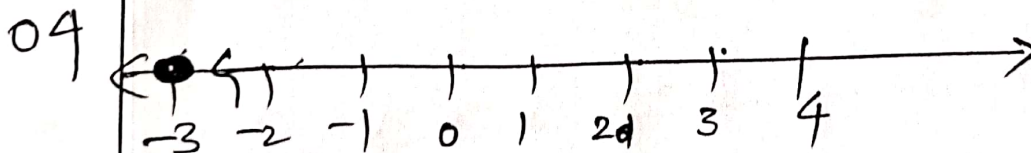
Ans: B

02. 6 is divisible by 3

Ans: C

03. Factors of 4 = $\{1, 2, 4\}$

Ans: A



Ans: -3

Ans: A

05. Conceptual

Ans: C

06. 9 is both composite and odd

Ans: C

07. $|-9| = 9$

Ans: C

08 $|a+b| = a+b$

Ans: A (7)

09 $||1| + |-1|| = 1+1=2$

Ans: B

10 Conceptual

Ans: A

11 4

Ans: B

12 Conceptual

Ans: A

13 $|a| - |-a| = a - a = 0$

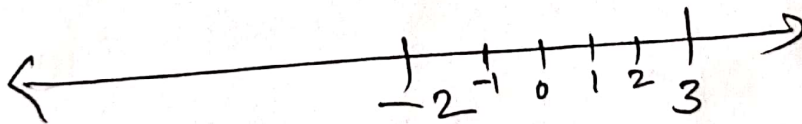
Ans: C

14 $|x| + |-y| = x+y$

Ans: A

JEE MAINS LEVEL

01.



Ans: A

0 is closer to -2

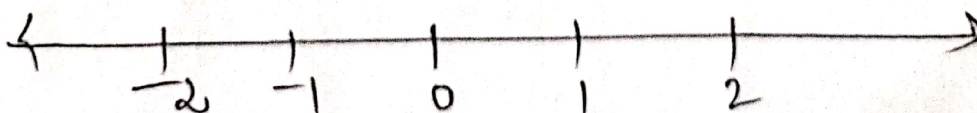
02 Conceptual

Ans: B

03 $|x| = 4$
 $\Rightarrow x = \pm 4$

Ans: C

04.



4 units apart

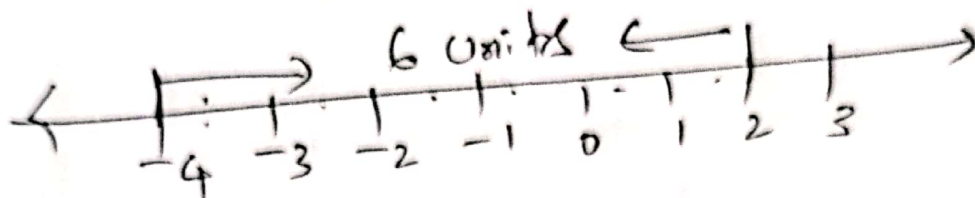
Ans: B

05



Ans: B

06



i.e.

Ans: C

07.

$$n > 0$$

$$\Rightarrow -n < 0$$

Ans: B

08

positive, negative, 0

Ans: B

09.

$$|a+b| = -(a+b) \Rightarrow a+b < 0$$

$$|a+b| = y+x \Rightarrow y+x > 0$$

$$\therefore a+b < y+x$$

Ans: B

10.

$$|x+1| = x+1 \Rightarrow x+1 > 0$$

$$|y+1| = -(y+1) \Rightarrow y+1 < 0$$

$$\therefore y+1 < x+1 \Rightarrow y < x$$

Ans: A

11.

$$|l+m| = l+m = a+b$$

$$l=a, m=b \text{ (or) } l=b, m=a$$

Ans: D

$$12. |x| = -y \Rightarrow y < 0$$

$$|y| = -x \Rightarrow x < 0$$

$$\therefore x + y < 0$$

$$\Rightarrow -(|x| + |y|) < 0$$

Ans: C

$$13. |a+b| + |b+c| + |c+a| = 5 + 10$$

Please Change this question as:

"If $|a+b| = 5$, $|b+c| = 10$, $|c+a| = 15$, Then

option: A $|a+b| + |b+c| + |c+a| > 0$

B) $b+c > 0$, $c+a > 0$

C) $a+b > 0$, $b+c > 0$

D) None

Ans: A

$$14. |20| > |-15| > |10|$$

Ans: B

$$15. 2|x-a| = x-a + a-x = 0$$

Ans: D

$$16. |a| = |b-c| \Rightarrow a = \pm(b-c)$$

$$\Rightarrow a = b-c \Rightarrow b-a = c$$

Ans: B

JEE ADVANCED LEVEL

(10)

01	Conceptual	Ans: A, C
02	Conceptual	Ans: A, B
03	Conceptual	Ans: B, C
04	Conceptual	Ans: A, B, C, D
05	$1-11+111+1-11+\dots \text{ (111 times)}$ $= 1+1+1+\dots +111 \text{ times} = 111$	Ans: D
06	<u>Statement I:</u> Conceptual (True) <u>Statement II:</u> Conceptual (False)	Ans: C
07	<u>Statement I:</u> Conceptual (True) <u>Statement II:</u> Conceptual (False)	Ans: C
08	<u>Assertion:</u> Conceptual (False) <u>Reason:</u> Conceptual (True)	Ans: D
09	<u>Assertion:</u> Conceptual (True) <u>Reason:</u> Conceptual (True)	Ans: A
10	Conceptual	Ans: B
11	Conceptual	Ans: B

$$\begin{aligned}
 12 \quad |x^2 - y^2| &= |(x+y)(x-y)| = |x+y| |x-y| \\
 &= (x+y) \cdot (-(x-y)) \\
 &= -(x^2 - y^2) \\
 &= y^2 - x^2
 \end{aligned}$$

(11)
 Ans: B

$$\begin{aligned}
 13 \quad |a^2 - b^2| &= |(a+b)(a-b)| = |a+b| |a-b| \\
 &= -(a+b) \cdot -(a-b) \\
 &= a^2 - b^2
 \end{aligned}$$

Ans: A

$$\begin{aligned}
 14 \quad |m^2 - n^2| &= |(m+n)(m-n)| = |m+n| |m-n| \\
 &= (m+n)(m-n) \\
 &= m^2 - n^2
 \end{aligned}$$

Ans: B

15 Smallest prime number = 2
 Smallest odd composite number = 9
 Difference = ~~9~~ - 2 = 7

Ans: 7

$$16 \quad |3 - (-7)| = |3 + 7| = |10| = 10$$

Ans: 10

$$17 \quad \frac{1 - 100 + 200 + 300 + 400}{1 + 2 + 3 + 4} = \frac{801}{10} = 80.1$$

Ans: 80

$$\begin{aligned}
 18 \quad & \left| 1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{6} \right| \\
 &= \left| \frac{6 + 3 + 2 + 1}{6} \right| \\
 &= \left| \frac{12}{6} \right| = |2| = 2
 \end{aligned}$$

Ans: 2

19

(12)

$$a) \begin{aligned} a < 2 &\Rightarrow a-2 < 0 \Rightarrow |a-2| = 2-a \\ a < b &\Rightarrow b-2 > 0 \Rightarrow |b-2| = b-2 \\ \therefore |a-2| + |b-2| &= b-a \text{ (x)} \end{aligned}$$

$$b) \begin{aligned} a > 2 &\Rightarrow a-2 > 0 \Rightarrow |a-2| = a-2 \\ b < 2 &\Rightarrow b-2 < 0 \Rightarrow |b-2| = 2-b \\ \therefore |a-2| + |b-2| &= a-b \text{ (t)} \end{aligned}$$

$$c) \begin{aligned} a > 2 &\Rightarrow a-2 > 0 \Rightarrow |a-2| = a-2 \\ a < b &\Rightarrow b-2 > 0 \Rightarrow |b-2| = b-2 \\ \therefore |a-2| + |b-2| &= a+b-4 \text{ (p)} \end{aligned}$$

$$d) \begin{aligned} a < 2 &\Rightarrow a-2 < 0 \Rightarrow |a-2| = 2-a \\ 2 > b &\Rightarrow b-2 < 0 \Rightarrow |b-2| = 2-b \\ \therefore |a-2| + |b-2| &= 4-a-b \text{ (s)} \end{aligned}$$

Ans: x, t, p, s

20

$$a) |-4| = 4 \text{ (x)}$$

$$b) |9 - (-6)| = |2+6| = 8 \text{ (y)}$$

$$c) |5| = 5 \text{ (z)}$$

$$d) -1 \text{ (p)}$$

Ans: x, y, z, p

 $\Rightarrow \text{THE END} \Leftarrow$