

2. OPERATIONS ON INTEGERS

Class: VI, MATHEMATICS

FOUNDATION: SOLUTIONS

TEACHING TASK

2025/26

JEE MAINS

01.	$(-2) \times (-5) \times (-30) = -300$	Ans: B
02	$(-7) - 8 - (-25) = -7 - 8 + 25 = 10$	Ans: D
03	Conceptual	Ans: C
04	$15 \times (-25) \times (-4) \times (-10) = 15000$	Ans: D
05	$\frac{45}{-9} = -5$	Ans: A
06	$\begin{aligned} & -107 - (-20) - 5 \\ & = -107 + 20 - 5 \\ & = -92 \end{aligned}$	Ans: B
07	$(-21) \times 21 = -441$	Ans: B
08	$8 \times 53 \times (-125) = -53000$	Ans: B
09	$22 \times (-1) \times (-2) \times (-10) = -440$	Ans: A
10	$5 + (-5) + 5 + (-5) + \dots$ 400 times here 400 is an even number hence, Sum = 0	Ans: A
11	$x + 60 = -300 \Rightarrow x = -360$	Ans: B

12	$x+7=20 \Rightarrow x=13$	Ans: A									
13	$x+y=x \Rightarrow x=x-y$	Ans: A									
14	$x \times y = x \Rightarrow x = \frac{x}{y}$	Ans: A									
15	other integers = 120 Ans: A										
JEE ADVANCED LEVEL											
01	Conceptual	Ans: A, B, C									
02	Conceptual	Ans: A, B									
03	Statement I: Conceptual (True) Statement II: Conceptual (True)	Ans: A									
04	Statement I: Conceptual (True) Statement II: Conceptual (True)	Ans: A									
05	Assertion: Conceptual (True) Reason: Conceptual (True)	Ans: A									
06	Assertion: Conceptual (True) Reason: Conceptual (True)	Ans: A									
07	<table border="1"> <tr><td>-3</td><td>2</td><td>x</td></tr> <tr><td>a</td><td>0</td><td>c</td></tr> <tr><td></td><td></td><td></td></tr> </table> $-3+2+x=6 \Rightarrow x=7$	-3	2	x	a	0	c				Ans: A
-3	2	x									
a	0	c									
08	Associative	Ans: B									
09	$a+0+c=6 \Rightarrow a+c=6$ or $a=c$	Ans: B									
10	513627	Ans: B									

11	Conceptual	Ans. B
12	Additive inverse of $(b-a) = -(b-a)$	Ans. C
13	Multiplicative inverse of $-\frac{1}{12} = -12$	Ans. D
14	$S = (-1 + 1 - 1 + \dots) \dots (11 \text{ times})$ $\Rightarrow S = 1$ Since 11 is an odd number	Ans. 1
15	The other number = $\frac{139750}{-2150} = -65$	Ans. -65
16	$5 + \frac{6}{12} \times 2 = 5 + 1 = 6$	Ans. 6
17	a) Commutative property (q) b) Associative property (p) c) Additive Identity (r) d) $a + (-a) = 0$, Additive Inverse (s)	Ans. q, p, r, s
18	a) $-51 \times (16 + 13) = (-51) \times 16 + (-51) \times 13$ b) $(-51 + 16) \times 13 = (-51) \times 13 + 16 \times 13$ c) $(-51 + 16) + 13 = -51 + (16 + 13)$ d) $-51 + (16 - 13) = (-51 + 16) - 13$	Ans. S, r, p, q
<u>LEARNER'S TASK (COURIS</u>		
01.	$-373 + 20 + (-3) + (-5) = -361$	Ans. A
02.	3567	Ans. B

03	$(-3) \times (-5) \times (-2) = -30$	Ans: D
04	$(-10) + (19) = 9$	Ans: A
05	$(-10) + (-9) = -19$	Ans: D
06	$(-7) + (-9) + 4 + 6 = 4$	Ans: A
07	$37 + 2 + (-65) + (-8)$ $= 39 - 73$ $= -34$	Ans: A
08	$-312 + 39 + 192 = -81$	Ans: C
09	$(-10) + 92 + 84 + (-15) = 151$	Ans: D
10	$-9 + 4 + (-6) + 3 = -8$	Ans: C
JEE MAINS LEVEL		
01.	$\begin{array}{l} x+y=40 \\ x-y=4 \end{array}$ $\Rightarrow x=22$ $\Rightarrow y=18$	Ans: A
02.	$\left. \begin{array}{l} x + \frac{x}{2} = 60 \\ \Rightarrow 2x + x = 120 \end{array} \right\} \begin{array}{l} x = 40 \\ \therefore \frac{x}{2} = 20 \end{array}$	Ans: B
03	option verification 10, 15	Ans: A
04	$(368 \times 12) + (18 \times 368)$ $= 368 \times (12 + 18)$ $= 368 \times 30 = 11040$	Ans: B

(5)

$$\alpha + \beta + 8 = x$$

$$\Rightarrow -y + 8 = x$$

$$\Rightarrow z = x + \alpha$$

Ans: B

$$\alpha + \beta + x + 8 = x$$

06

Ans: A

$$\Rightarrow x + z = x$$

$$\alpha \cdot \beta \cdot z = A$$

$$\Rightarrow \alpha \cdot \beta = A$$

$$\Rightarrow \alpha = \frac{A}{\beta}$$

Ans: A

$$a + b + c + d = 100$$

08

$$\Rightarrow 10k + 5k + 10k + d = 100$$

$$\Rightarrow 25k + d = 100$$

$$\Rightarrow d = 100 - 25k = 5(20 - 5k)$$

$$\Rightarrow d = 5k$$

$\therefore d$ is multiple of 5

Ans: B

$$xyz = 105 \Rightarrow 7k \cdot z = 105$$

09

$$\Rightarrow z = k \cdot 15$$

$$\Rightarrow z = 5(3k)$$

$\therefore z$ is multiple of 5

Ans: A

$$10 \cdot 2a + 2b + 2c = 48$$

$$\Rightarrow a + b + c = 24$$

$$\Rightarrow a + 28 = 24$$

$$\Rightarrow a = -4$$

Ans: A

11.	$3x(5+x) = 33$ $\Rightarrow 5+x=11 \Rightarrow x=6$	Ans. A
12.	Option Verification $x=2, y=1$	Ans. A
13.	$a+x=0 \Rightarrow x=-a$	Ans. B
14.	Conceptual	Ans. A
15.	Option Verification $x=2, y=8, z=9$	Ans. A
JEE ADVANCED LEVEL		
Q1	$ab=10, cd=30$ $=3 \times 10$ $=3 \times ab$ $\therefore ab = \frac{1}{3}cd$	Ans. A, B
Q2	$x=5, y=3, z=4$ $\therefore x^2 = y^2 + z^2$	Ans. B, A
Q3	Conceptual	Ans. A, D
Q4	Option Verification $a=1, b=7$	Ans. A
Q5	Statement I: Conceptual (True) Statement II: Conceptual (True)	Ans. A
Q6	Statement I: Conceptual (True) Statement II: Conceptual (True)	Ans. A
Q7.	Statement I: Conceptual (True) $a(b+c) = ab+ac \Rightarrow c=m$ Statement II: Conceptual (False)	Ans. C

08	Assertion: Conceptual (True) Reason: Conceptual (True)	Ans: A
09	Assertion: Conceptual (True) Reason: Conceptual (True)	Ans: A
10	Successor of $a+b-1 = (a+b-1) + 1$ $= a+b$	Ans: A
11	Predecessor of $x-y = x-y-1$	Ans: C
12	Successor of $x = x+1$ predecessor of $x = x-1$ $\therefore \text{Sum} = x+1 + x-1 = 2x$	Ans: C
13	$a=k, b=k+1, c=k+2, d=k+3$ $\therefore b = \frac{a+c}{2}$	Ans: A
14	$b+d = (k+1) + (k+3)$ $= 2(k+2)$ $= 2c$	Ans: B
15	$a+d = k+k+3$ $= 2k+3$	$b+c = (k+1) + (k+2)$ $= 2k+3$ Ans: C
16	$1 + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} = \frac{6+3+2+1}{6} = \frac{12}{6} = 2$	Ans: 2
17	$1+2+3 + \dots + 100 = 5050$ $S_n = \frac{n(n+1)}{2}$	Ans: 5050

18 $(-50) + (50) = 0$

Ans: 0

19 a) Conceptual (x)

b) Conceptual (t)

c) Conceptual (p)

d) Conceptual (q)

Ans: x, t, p, q

20 a) $a=1, b=2, c=3$

$$a + (b+c) = 1 + (2+3) = 6$$

$$a \times (b \times c) = 1 \times 2 \times 3 = 6$$

$$1 \cdot 2 + 2 \cdot 3 + 3 \cdot 6 = 2 + 6 + 3 = 11$$

$$b) ab + bc + ca =$$

$$1 \cdot 2 + 2 \cdot 3 = 1 + 4 + 9 = 14$$

$$c) a^2 + b^2 + c^2 =$$

$$1^2 + 2^2 + 3^2 = 1 + 4 + 9 = 14$$

$$d) a^3 + b^3 + c^3 =$$

$$1^3 + 2^3 + 3^3 = 1 + 8 + 27 = 36$$

Ans: t, x, s, q

$\Rightarrow$ THE END $\Leftarrow$