



Sahi Prep Hai Toh Life Set Hai

ALGEBRA-5



* Algebra - 5 (Extra Session) Discussing Some Jup Question John We have a Doubt Session Please send all your doubts
before 7pm



Q10. If $x^{x\sqrt{x}} = (x\sqrt{x})^x$, then x equals

(a)
$$\frac{4}{9}$$

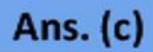
(b)
$$\frac{2}{3}$$

(c)
$$\frac{9}{4}$$

(d)
$$\frac{3}{2}$$

$$x^{3/2}$$
 $x^{3/2}$
 $= (x^{3/2})^{x}$
 $x^{3/2}$
 $= x^{3/2}$
 $x^{3/2}$
 $= x^{3/2}$

$$x^{3/2} = \frac{3}{2}x$$
 $x^{3/2} = \frac{3}{2}x^{2/2}$
 $x^{3/2} = \frac{9}{2}x^{2/2}$
 $x = \frac{9}{4}$
 $x = \frac{9}{4}$







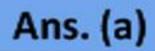
Q11. If
$$x = \frac{\sqrt{5} - \sqrt{3}}{\sqrt{5} + \sqrt{3}}$$
 and $xy = 1$ then $\frac{x^2 + xy + y^2}{x^2 - xy + y^2}$ is $(x+y)^2 - xy = 63$

$$\frac{(a)}{61}$$

(b)
$$\frac{67}{65}$$

(c)
$$\frac{65}{63}$$

(d)
$$\frac{69}{67}$$







Q12. If
$$x=1+\sqrt{2}+\sqrt{3}$$
 then $(2x^4-8x^3-5x^2+26x-28)$

Time -> 2min

is

(a)
$$2\sqrt{2}$$

(b)
$$3\sqrt{3}$$

$$x-1 = \int_{2}^{2} + \int_{3}^{2}$$

 $x^{2}-2x+1 = 5+2\sqrt{6}$

$$x^{2} - 2x - 4 = 256$$





Q13. If x = 16, then $x^4 - 17x^3 + 17x^2 - 17x + 17$ is

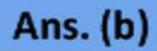
(a) 0

(b) 1

(c) 4

(d) 3

$$x^{4} - 16x^{3} - x^{3} + 16x^{3} + x^{2} - 16x - x + 17$$
 $16^{4} - 16^{6} - 16^{3} + 1676^{6} + 16^{3} - 1616^{6} - 16 + 17$







Q14. If
$$x = 11$$
 then $x^4 - 13x^3 + 12x^2 - 14x + 10 = ?$

(a)
$$-1350$$

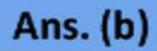
$$x^{4} - 11x^{3} - 2x^{3} + 11x^{2} + x^{2} - 11x - 3x + 10$$

$$11y^{4} - 11x^{3} - 2 \cdot 11^{3} + 11^{3} + 11^{2} - 11^{2} - 3 \cdot 11 + 10$$

$$-11^{3} - 33 + 10$$

$$-1331 - 33 + 10$$

$$= -1359$$







Q15. If
$$x = 3 + 2\sqrt{2}$$
, then $\frac{x^6 + x^4 + x^2 + 1}{x^3}$ is equal to—

$$(x^{3} + x + 1 + 1 + 1)$$
 $(x^{3} + x + 1 + 1 + 1)$
 $(x^{3} + x + 1) + (x + 1)$
 $(x^{3} + x + 1) + (x + 1)$

$$\frac{6^3 - 3.6}{204}$$







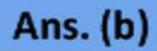
Q16. If
$$x^2 + x = 5$$
 then $(x + 3)^3 + \frac{1}{(x + 3)^3}$ is

- (a) 140
- (c) 130

- (b) 110
 - (d) 120

$$(m-3)^2 + (m-3) = 5$$

$$-5^3 - 3.5$$







Q17. If
$$x = 2 + 2^{\frac{2}{3}} - 2^{\frac{1}{3}}$$
 then find $x^3 - 6x^2 + 18x + 3$

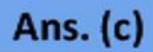
- (a) 22 (b) 24
- (c) 25

$$x-2=\frac{2^{3}}{2}-\frac{3^{1/3}}{3}$$

$$x^{3} - 8 - 6x(x-2) = 4 - 2 - 3 - 2^{1/3}2^{1/3}(x-y)$$

$$x^{3} - 8 - 6x^{2} + 12x = 2 - 6x + 12$$

 $x^{3} - 6x^{2} + 18x = 22$







Q18. If
$$\frac{a}{1-2a} + \frac{b}{1-2b} + \frac{c}{1-2c} = 1$$
 find $\frac{1}{1-2a} + \frac{1}{1-2b} + \frac{1}{1-2c} = ?$

$$3\left(\frac{9}{1-29}\right) - 1$$
 $39 - 1-29$



$$\frac{a}{1-2a} + \frac{b}{1-2b} + \frac{c}{1-2c} = 1 - (1)x^{-2}$$

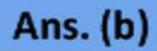
$$\frac{1}{1-2a} + \frac{1}{1-2c} + \frac{1}{1-2c} = x - (2)x$$



Q19. If
$$\frac{a}{2-3a} + \frac{b}{2-3b} + \frac{c}{2-3c} = 2$$
 find $\frac{1}{2-3a} + \frac{1}{2-3b} + \frac{1}{2-3c} = ?$

$$\frac{a}{2-39} + \frac{b}{2-35} + \frac{c}{2-3c} = 2 - \frac{10}{10} \times \frac{3}{2}$$

$$\frac{1}{2-30}$$
 + $\frac{1}{2-35}$ + $\frac{1}{2-3c}$ K2







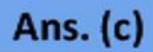
Q20. If
$$\frac{a}{3+2a} + \frac{b}{3+2b} + \frac{c}{3+2c} = 6$$
 find $\frac{1}{3+2a} + \frac{1}{3+2b} + \frac{1}{3+2c} = ?$

$$\frac{9}{3429} + \frac{5}{3426} + \frac{C}{3426} = 6 - (1)x^{2}$$

$$\frac{1}{3+29} + \frac{1}{3+26} + \frac{1}{3+26} = k - (2)x^{3}$$

$$\frac{3+29}{3+29} + \frac{1}{3+26} + \frac{1}{3+26} = k - (2)x^{3}$$

$$3 = (2+3K)$$







Q21. If
$$\frac{a^2 - bc}{a^2 + bc} + \frac{b^2 - ca}{b^2 + ca} + \frac{c^2 - ab}{c^2 + ab} = 1$$
 then the

value of
$$\frac{a^2}{a^2 + bc} + \frac{b^2}{b^2 + ca} + \frac{c^2}{c^2 + ab}$$
 is

$$(c) -1$$

$$\frac{a^{2}-bc}{a^{2}+bc} + \frac{b^{2}-ca}{b^{2}+ca} + \frac{c^{2}-ab}{c^{2}+ab} = 1 \times (-1)$$

$$\frac{a^{2}+bc}{a^{2}} + \frac{b^{2}}{b^{2}+ca} + \frac{c^{2}-ab}{c^{2}+ab} = -1 \times (2)$$

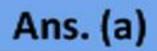
$$3 = -1 + 2k$$





Q22. If
$$a + b + c = 4\sqrt{3}$$
 and $a^2 + b^2 + c^2 = 16$ then $a:b:c=?$

(b)
$$1:\sqrt{2}:\sqrt{3}$$







Q23. If a + b + c = 6, $a^2 + b^2 + c^2 = 14$. Find the value of a : b : c = ??

SaM

Symmetricity

Chal

39=6

1 = 2

Can't be

2+2+2 714

Not Setrafying

Le determined

Ans.





Q24. If
$$\sqrt{3x^2 - 12x + 19} + \sqrt{3x^2 - 12x - 11} = 6$$
 then —

$$\sqrt{3x^2 - 12x + 19} - \sqrt{3x^2 - 12x - 11} = ?$$

(a) 4

(b) 3

(c) 0

Multiply (D)
$$b$$
 (2)
 $(3x^2-12x+19)-(3x^2-12x+11)=6x$





Q25. If x(x+y+z) = 28, y(x+y+z) = 70, z(x+y+z) = 98

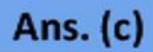
then the value of 3(x + y + z) is:

(a)
$$\pm 28$$

(b)
$$\pm 24$$

(d)
$$\pm 36$$

$$x(x+y+z) = 28 - 0$$
 $y(x+y+z) = 70 - 2$
 $z(x+y+z) = 98 - 3$
Add $(0_1^2) 3 = 96$
 $(x+y+z)^2 = 96$
 $(x+y+z)^2 = 96$







Q26. If $2^x = 8^y = 32^z$ and x + y + z = 20. Find the value of y.

$$2^{x} = 2^{3y} = 2^{5z}$$

Ans.

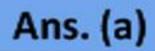




Q27. If
$$2^x = 3^y = 6^{-z}$$
 then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is equal to

(c)
$$\frac{3}{2}$$

(d)
$$\frac{-1}{2}$$







Q28. The value of
$$\frac{1}{1+p+q^{-1}} + \frac{1}{1+q+r^{-1}} + \frac{1}{1+r+p^{-1}}$$

given that pqr = 1 is-

(c)
$$p+q+r$$

(c)
$$p+q+r$$
 (d) None of these









Q29. If
$$x^2 + 2 = 2x$$
 then $x^4 - x^3 + x^2 + 5 = ?$

(a) 1

(c) 3

$$x^{2} + 2 = 2x$$
 $x^{2} - 2x - 2$

$$(x^{2})^{2} - (x^{2}) \cdot x \cdot + x^{2} \cdot + 5$$

$$(2x^{2})^{2} - (2x^{2}) \cdot x \cdot + 2x^{2} \cdot + 5$$

$$(2x^{2})^{2} - (2x^{2}) \cdot x \cdot + 2x^{2} \cdot + 5$$

$$(2x^{2})^{2} - (2x^{2}) \cdot x \cdot + 2x \cdot + 2x \cdot + 3$$

$$(2x^{2} - 8x + 4) - 2x^{2} + 2x \cdot + 3x \cdot + 3$$

$$2x^{2} - 9x \cdot + 7 = 2(-2x^{2} + 3x^{2} + 3x^{$$

Ans. (c)

x4- 23+x2+5



$$x^{3} + 2x = 2x - (1)$$

$$x^{3} + 2x^{2} = 3x^{2} - (2)$$

$$x^{1} + 3x^{2} - 3x^{2} - (3)$$

$$x^{1} + x^{2} + x + 3 = 3x^{2}$$

$$x^{1} - x^{2} + x^{2} + 3 = 3$$

$$x^{1} - x^{2} + x^{2} + 5 = 3$$



Q30. If
$$x^3 + y^3 + z^3 = 3(1 + xyz)$$
, $P = y + z - x$, $Q = Z + x - y$, $R = x + y - z$ then what is the value of $P^3 + Q^3 + R^3 - 3PQR = ?$

(a) 9

(b) 8

(c) 12

Ans. (c) Suuch x+4+2=3(1+x42) P = y + z - x gradeup Q = z + x - y P = x + y - zDetailed P3+03+23-3PQR 1 (P+Q+R) [(P-Q)+(Q-R)+(P-P)2] = 1 (x+y+z) (y(y-x) + y(z-y) + y(x-z))
- (x+y+z)(y)(y+x) + (z-y) + (x-z)) 4 (x3+y3+2-3xy2) - 4.3 -(12)

Q31. If $u_n = \frac{1}{n} - \frac{1}{n+1}$ then the value of $u_1 + u_2 + u_3 + u_4 + u_5$ is-

(a)
$$\frac{1}{2}$$

(b)
$$\frac{1}{3}$$

(c)
$$\frac{2}{5}$$

(d)
$$\frac{5}{6}$$

Ans. (d)

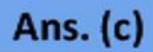




Q32. If
$$x = \sqrt[3]{a + \sqrt{a^2 + b^3}} + \sqrt[3]{a - \sqrt{a^2 + b^3}}$$
 then

 $x^3 + 3bx$ is equal to –

- (a) 0 (b) a
- (c) 2a







Q33. If $x_1x_2x_3 = 4 (4 + x_1 + x_2 + x_3)$ then what is the

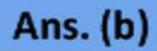
value of
$$\frac{1}{(2+x_1)} + \frac{1}{(2+x_2)} + \frac{1}{(2+x_3)}$$

(a) 1

(b) $\frac{1}{2}$

(c) 2

(d) $\frac{1}{3}$



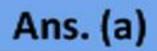




Q34. Let
$$x = \frac{\sqrt{13} + \sqrt{11}}{\sqrt{13} - \sqrt{11}}$$
 and $y = \frac{1}{x}$, then the value

of
$$3x^2 - 5xy + 3y^2$$
 is-

- (a) 1717 (b) 1177
- (c) 1771 (d) 1171





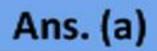


Q35. If $a^2 + b^2 + 9 - 6b + (a + b - 4)^2 = 2ab - 6a$, then find ab = ??

(a) 7/4

(b) -7/4

(c) 7/2





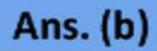


Q36. If a + b = 48 - ab, b + c = 99 - bc and c + a = 3 - ca where a, b and c are positive number then find 7c - 15a + b = ?

(a) 38

(b) 41

(c)43







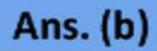
Q37. If $2.9^x = 841^y = 1000$, find $\frac{xy}{x-2y} = ?$

(a) 1/2

(b) 2

(c) 1/3

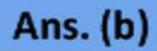
(d) -1/4







Q38. If $a^4 + b^4 - 18 a^2b^2 = 24$ and $a^2 - b^2 - 4ab = 6$, find ab = ?





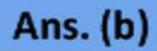


Q39. If $x^2 - 4x + 1 = 0$, find $x^9 + x^7 - 194x^5 - 194x^3 = ?$

(a) - 2

(b) -4

(c) 0







Q40. If
$$\frac{8(x+y)^3-27(x-y)^3}{5(y-x)} = Ax^2 + Bxy + Cy^2$$

then find the value of (A + B + C) = ?