MAINS SPECIAL

ALGEBRA

If $x^2 + y^2 + z^2 = 198x + 202y + 200z - 30002$, then $x^3 + y^3 + z^3 - 3xyz$ equal to

(a) 80
(b) 900
(c) 100
(d) 950

$$\frac{(x+y+z)}{2}\left[(x-y)^2+(y-z)^2+(z-x)^2\right] \quad (1)$$

$x = 99$
$y = 101$
$z = 100$

$$\frac{1}{2}\left[(x-y)^2+(y-z)^2+(z-x)^2\right] = 3$$

$n, n+1, n+2$

$$\frac{300}{2}\left(\frac{3}{6}\right) \quad (B)$$

(2) If $a - \frac{1}{a} = 5\sqrt{3}$ & $a^4 - Xa^2 + 1 = 0$ and $a^3 - \frac{1}{a^3} = Y$ then Y – X equals to.

$a^2 + \frac{1}{a^2} = X = n^2 + 2 = 77$

$5\sqrt{3}(78)$

$390\sqrt{3}$

(a) $390\sqrt{3} - 77$

(b) $380\sqrt{3} - 70$

(c) $390\sqrt{3} + 77$

(d) $395\sqrt{3} - 70$

$390\sqrt{3} - 77$

(A)

(3) $(x + a)(x+b)(x+c) = x^3 - 8x^2 + 75x + 25$, then

$\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = ?$

a, b, c, roots हैं

(a) 1 (b) 2

(c) -3 (d) 4

$\alpha + \beta + \gamma = -\frac{b}{a}$

$\alpha\beta\gamma = -\frac{d}{a}$

$\alpha\beta + \beta\gamma + \gamma\alpha = \frac{c}{a}$

$\frac{ab+bc+ca}{abc}$

$\frac{\frac{75}{1}}{-\frac{25}{1}} = -3$

(C)

(4)

$x + 25x^{-1} = 15\sqrt{2}$, $\frac{x^2}{5} + \frac{125}{x^2}$ =?

(a) 26 (b) 90

(c) 40 (d) 80

(D)

$x + \frac{25}{x} = 15\sqrt{2}$

$\frac{1}{5}\left[450 - 50\right] = 80$

$\frac{1}{5}\left[x^2 + \frac{625}{x^2}\right]$

(5)

If $\frac{a}{bc}=\frac{1}{ac}+\frac{1}{ab}, \frac{b}{ac}=\frac{1}{ab}+\frac{1}{bc}, \frac{c}{ab}=\frac{1}{bc}+\frac{1}{ac}$

then $\left(\frac{a-1}{a^2-1}\right)+\left(\frac{b-1}{b^2-1}\right)+\left(\frac{c-1}{c^2-1}\right)$ = ?

(a) 2 (b) 1

(c) 0 (d) 3

$\frac{a}{bc}=\frac{b+c}{abc}$

$\frac{c}{a+b+c}+\frac{b}{a+b+c}+\frac{a}{a+b+c}$ ← $\frac{1}{\frac{b+c+1}{a}}$

$\frac{1}{a+1}+\frac{1}{b+1}+\frac{1}{c+1}$

(B)

6 If $a + x^2 = 2006$, $b + x^2 = 2007$ and $c + x^2 = 2008$, $abc = 3$. Find the value of

$$\frac{a}{bc} + \frac{b}{ca} + \frac{c}{ab} - \frac{1}{a} - \frac{1}{b} - \frac{1}{c}.$$

यदि $a + x^2 = 2006$, $b + x^2 = 2007$ तथा $c + x^2 = 2008$, तथा $abc = 3$. तो

$\frac{a}{bc} + \frac{b}{ca} + \frac{c}{ab} - \frac{1}{a} - \frac{1}{b} - \frac{1}{c}$ का मान होगा।

(a) 1
(b) 2
(c) 1/2
(d) None of these

$\frac{a^2+b^2+c^2-bc-ab-ca}{abc}$

$\frac{(a-b)^2+(b-c)^2+(c-a)^2}{2abc}$

$\frac{3}{3} = 1$ (A)

a, b, c लगातार No. है

$x = 1.278$

$y = 2.278$

$z = 3.278$

$x = \frac{5}{4}$

$y = \frac{9}{4}$

$z = \frac{13}{4}$

$$\frac{(x-y)^2+(y-z)^2+(z-x)^2}{2} = 3$$

$$\frac{1^2+1^2+2^2}{2} = 3$$

(7) If $a^2 + 2b = 7$, $b^2 + 4c = -7$, $c^2 + 6a = -14$, $(a^2+b^2+c^2)$ then the value is.

यदि $a^2 + 2b = 7$, $b^2 + 4c = -7$, $c^2 + 6a = -14$ $(a^2+b^2+c^2)$ तो निम्न का मान बताओं।

(a) 14 (b) 25

(c) 36 (d) 46

$(-3)^2+(-1)^2+(-2)^2$

$9+1+4$

14

(A)

$a^2+b^2+c^2+6a+2b+4c+14=0$ ×

(-3) (-1) (-2)

(8) If a, b, c are real numbers such that $a+\frac{1}{b}=\frac{7}{3}, b+\frac{1}{c}=4, c+\frac{1}{a}=1$, find abc.

$\left(a+\frac{1}{b}\right)\left(b+\frac{1}{c}\right)\left(c+\frac{1}{a}\right)=$

$abc+\frac{1}{abc}+\left(a+b+c+\frac{1}{a}+\frac{1}{b}+\frac{1}{c}\right)$

यदि a, b, c तथा $a+\frac{1}{b}=\frac{7}{3}, b+\frac{1}{c}=4, c+\frac{1}{a}=1$ तो abc का मान ज्ञात करें।

$\frac{7}{3}\times 4\times 1=\frac{7}{3}+5+x+\frac{1}{x}$

(a) 2 (b) 0

(c) 1 (d) None of these

$2=x+\frac{1}{x}$

$x=1$ $abc=1$

(c)

(9)

If $xy + yz + zx = 1$, then the equation

$$\frac{x+y}{1-xy} + \frac{y+z}{1-yz} + \frac{z+x}{1-xz}$$ **is equal to.**

यदि $xy + yz + zx = 1$, तो समीकरण का

$$\frac{x+y}{1-xy} + \frac{y+z}{1-yz} + \frac{z+x}{1-xz}$$ मान होगा।

(a) $\frac{1}{x+y+z}$ (b) xyz

(c) $x + y + z$ (d) $\frac{1}{xyz}$

$\frac{x+y}{yz+zx}$

$\frac{x+y}{z(x+y)}$

$\frac{1}{z}+\frac{1}{x}+\frac{1}{y}$

$\frac{xy+yz+zx}{xyz} = \frac{1}{xyz}$

(D)

(10) **Possible value of x for equation**

$$3^{2x^2} - 2.3^{x^2+x+2} + 3^{2(x+2)} = 0$$

$(3^{x^2} - 3^{x+2})^2 = 0$

$x^2 = x+2$

-1 ✓

2 ✓

(A)

x के संभव मान क्या होंगे यदि समीकरण

$$3^{2x^2} - 2.3^{x^2+x+2} + 3^{2(x+2)} = 0$$

(a) (–1,2) ✓

(b) (0,2) ✗

(c) (0,-1) ✗

(d) (2,4) ✗

Option से

0

-1 ✓ ✗

(A)

(11) **If $3^{x+y} = 81$, $81^{x-y} = 3$ then x and y are.**

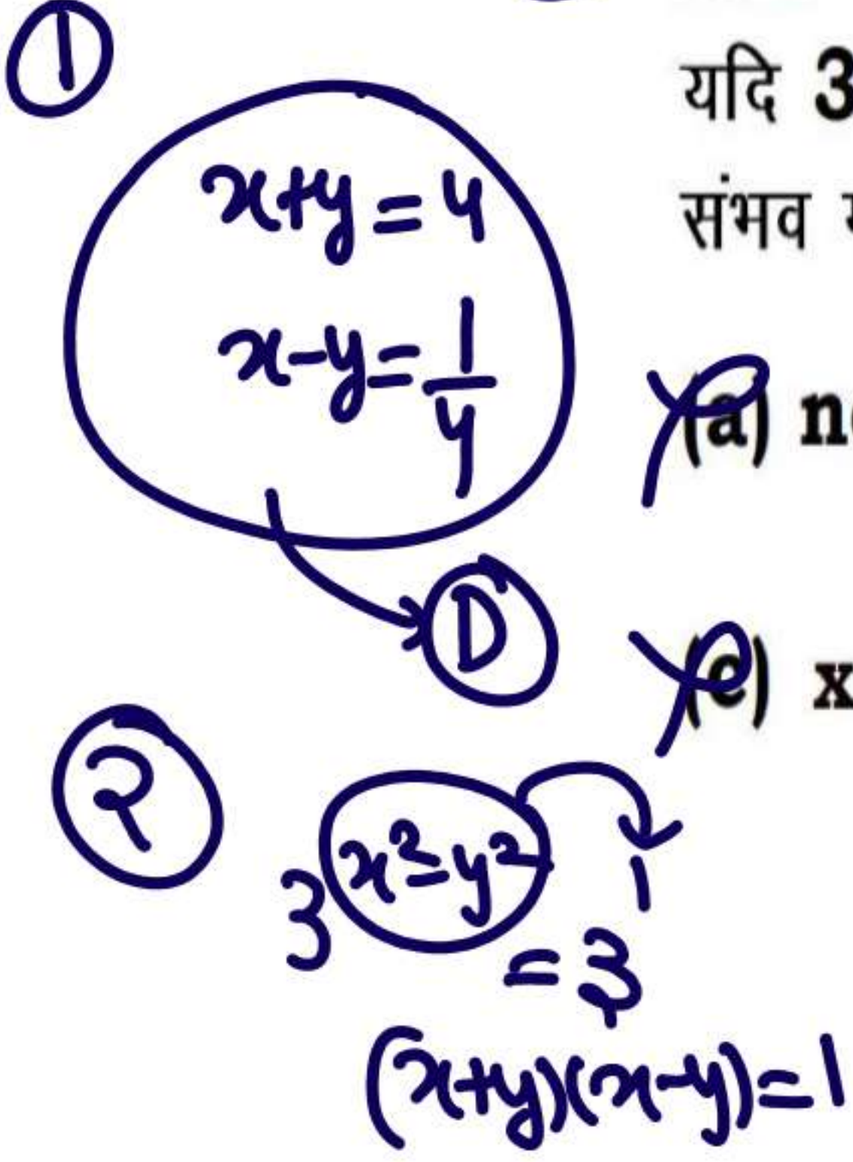
यदि $3^{x+y} = 81$ तथा $81^{x-y} = 3$ हो तो **x** तथा **y** के संभव मान ज्ञात करें।

(a) no solution

(b) $x = \frac{21}{2}, y = \frac{21}{2}$

(c) $x = 2, y = \frac{2}{3}$

(d) $x = \frac{17}{8}, y = \frac{15}{8}$



(12) **If $\sqrt{512}=2^x$, $\sqrt{15625}=5^y$ and $\sqrt{343}=7^z$ then what will be the value of x – y + z.**

यदि $\sqrt{512} = 2^x$, $\sqrt{15625} = 5^y$ और $\sqrt{343} = 7^z$ तो **x – y + z** का मान होगा।

(a) 4

(b) 6

(c) 9

(d) 3

$x = \frac{9}{2}$

$y = 3$

$z = \frac{3}{2}$

3 (D)

$\sqrt{(25^3)}$

$\sqrt{5^6} = 5^3$

(13) If $1960 = 2^a \times 5^b \times 7^c$ the find the value of $2^{-a} \times 7^b \times 5^{-c}$.

यदि $1960 = 2^a \times 5^b \times 7^c$ तो $2^{-a} \times 7^b \times 5^{-c}$ का मान बताओं।

$2^3 \times 5^1 \times 7^2$

(a) $\frac{175}{8}$

(b) $\frac{7}{200}$

(c) $\frac{7}{2000}$

(d) $\frac{56}{25}$

$\frac{1 \times 7 \times 1}{8 \times 25} = \frac{7}{200}$ (B)

14

One root of the quadratic equation $x^2 - bx + 6 = 0$ and $x^2 - 6x + c = 0$ is equal. The ratio of the remaining roots is 3: 4. If all the root are positive integers. Find the value of b and c respectively.

यदि द्विघात समीकरण $x^2 - bx + 6 = 0$ और $x^2 - 6x + c = 0$ के एक मूल समान हो तथा दूसरे मूलो का अनुपात **3: 4** हो तो **b** तथा **c** का मान बताओं यदि दिया हो कि सभी मूल घनात्मक पूर्णांक हैं।

(a) 3,4 (b) 5,8

(c) 1,6 (d) 8,5

B

$\begin{pmatrix} \alpha & \alpha \\ \beta_1 & \beta_2 \end{pmatrix}$

$\alpha\beta_1 = 3$

$\alpha\beta_2 = 4$

$\frac{6}{c} = \frac{3}{4}$

$c = 8$

15

If $(x+k)$ is a common factor of (x^2+px+q) and (x^2+lx+m), then the value of k is:

यदि $(x+k)$, (x^2+px+q) और (x^2+lx+m) समान गुणनखंड है। तो **k** का मान होगा।

(a) u + p

(b) m –q

(c) $\frac{l-p}{m-q}$

(d) $\frac{m-q}{l-p}$

$(-k)^2 - pk + q = (-k)^2 - lk + m$

$(l-p)k = m-q$

$k = \frac{m-q}{l-p}$

$x = -k$

(D)

16

If $2x = a + a^{-1}$ and $2y = b + b^{-1}$ find the value of $xy + \sqrt{(x^2-1)(y^2-1)}$.

यदि $2x = a + a^{-1}$ तथा $2y = b + b^{-1}$ तो निम्न का मान बताओं $xy + \sqrt{(x^2-1)(y^2-1)}$.

(a) $\frac{1}{2}(ab + a^{-1}b^{-1})$ (b) $\frac{1}{2}(ab)$

(c) $\frac{1}{2}a$ (d) $\frac{1}{2}b$

① $2x = a + \frac{1}{a}$

$2y = b + \frac{1}{b}$

$4xy = (a+\frac{1}{a})(b+\frac{1}{b})$

long quesn

② $a = b = x = y = 1$

1

A

(17)

If $a + b + c = 0$, $a^2 + b^2 + c^2 = 10$, then the value of $a^4 + b^4 + c^4$ is

यदि $a + b + c = 0$, $a^2 + b^2 + c^2 = 10$, तो निम्न का मान होगा $a^4 + b^4 + c^4$.

(a) 50 (b) 25

(c) 75 (d) 100

(1)

$ab+bc+ca = \frac{0^2-10}{2} = -5$

$(ab+bc+ca)^2 = a^2b^2+b^2c^2+c^2a^2 + 2abc(a+b+c)$

$25 = ?? + 2\times 0$

$?? = 25$

$(a^2+b^2+c^2)^2 - 2(a^2b^2+b^2c^2+c^2a^2)$

$10^2 - 2\times 25 = 50$ (A)

17

If $a + b + c = 0$, $a^2 + b^2 + c^2 = 10$, then the value of $a^4 + b^4 + c^4$ is

यदि $a + b + c = 0$, $a^2 + b^2 + c^2 = 10$, तो निम्न का मान होगा $a^4 + b^4 + c^4$.

(a) 50 ✓

(b) 25

(c) 75

(d) 100

$a = 0$

$b = \sqrt{5}$

$c = -\sqrt{5}$

$0 + 25 + 25$

50 (A)

18

If $\frac{x^2 - xy}{x^2y} = 5$ and $\frac{xy + y^2}{xy^2} = 7$ then the value of y is.

$\frac{1}{y} - \frac{1}{x} = 5$

$\frac{1}{y} + \frac{1}{x} = 7$

$\frac{1}{y} = 6$

$y = \frac{1}{6}$

यदि $\frac{x^2 - xy}{x^2y} = 5$ तथा $\frac{xy + y^2}{xy^2} = 7$ हो तो y का मान होगा।

(a) 1

(b) $\frac{1}{6}$ ✓

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

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

B

(19) **If $5^2.5^4.5^6....5^{2x} = (0.04)^{-28}$ then value of x is.**

यदि $5^2.5^4.5^6....5^{2x} = (0.04)^{-28}$ तो **x** का मान होगा।

(a) 5 (b) 10

(c) 8 (d) 7

$5^{2+4+6+...2x}$

$5^{2(1+2+...x)}$

$5^{2 \times \frac{x(x+1)}{2}} = 5^{56}$

$x = 7$

(D)

0.04 → $\frac{4}{100}$ → $\frac{1}{25}$ → 5^{-2}

20. If $23x - 29y = 98$, and $29x - 23y = 110$ then the value of $\sqrt{x^2 + y^2}$ is.

यदि $23x - 29y = 98$, और $29x - 23y = 110$ तो $\sqrt{x^2 + y^2}$ का मान है।

(a) $\sqrt{10}$
(b) $\sqrt{5}$
(c) 10
(d) 7

$6(x+y) = 12^2$

$52(x-y) = 208$

4

$x = 3$

$y = -1$

$\sqrt{10}$ (A)

(21) If $x = \frac{y}{y+1}$ and $y = \frac{a-2}{2}$, then the value of $x(y+2) + \frac{x}{y} + \frac{y}{x}$ is

$y=1$

$x=\frac{1}{2}$

$a=4$

$\frac{1}{2}(3)+\frac{1}{2}+2$

4

9 ✓

यदि $x = \frac{y}{y+1}$ तथा $y = \frac{a-2}{2}$, तो $x(y+2) + \frac{x}{y} + \frac{y}{x}$ का मान होगा।

(a) 1 (b) 0

(c) −1 ✓ (d) a (0)

(21) If $x = \frac{y}{y+1}$ and $y = \frac{a-2}{2}$, then the value of $x(y+2) + \frac{x}{y} + \frac{y}{x}$ is

Rearrangement

$xy + x = y$

$xy = y - x$

$xy + 2x$

$\frac{y + x + x^2 + y^2}{y - x}$

$\frac{y^2 - x^2 + x^2 + y^2}{y - x}$

$\frac{2yx}{xy} = \frac{2y}{x}$

$= 2(y+1) = 2\left(\frac{a-2}{2} + 1\right) = a$ (d)

यदि $x = \frac{y}{y+1}$ तथा $y = \frac{a-2}{2}$, तो $x(y+2) + \frac{x}{y} + \frac{y}{x}$ का मान होगा।

(a) 1 (b) 0

(c) –1 (d) a

22

If $2x^4 - 166x^{2+} 2 = 0$ then value of $x^3 - x^{-3}$ is.

यदि $2x^4 - 166x^{2+} 2 = 0$ तो $x^3 - x^{-3}$ का मान होगा।

(a) 758
(b) 756
(c) 739
(d) 737

B

$x^4 - 83x^2 + 1 = 0$

$x^2 + \frac{1}{x^2} = 83$

$x - \frac{1}{x} = 9$

(23)

Find the value of x if $\dfrac{\sqrt{a+x}+\sqrt{a-x}}{\sqrt{a+x}-\sqrt{a-x}}=b$.

(1) CHD

$$\sqrt{\frac{a+x}{a-x}}=\frac{b+1}{b-1}$$

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

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

$$x=\frac{2ab}{b^2+1}$$

(A)

यदि $\dfrac{\sqrt{a+x}+\sqrt{a-x}}{\sqrt{a+x}-\sqrt{a-x}}=b$ तो x का मान है।

(a) $\dfrac{2ab}{b^2+1}$ ✓

$a=5$
$x=4$

(b) $-\dfrac{2ab}{a+b}$

(c) $\dfrac{a+b}{2ab}$

(2) $\frac{4}{2}=\frac{b}{2}$

(d) $\dfrac{b^2+1}{2ab}$

24

If $ax^2 + bx + c = a(x-p)^2$, the relation among a, b, and c is.

यदि $ax^2 + bx + c = a(x-p)^2$, तो a, b, and c निम्न में कौन सा सही है।

(a) $abc=1$

(b) $2b=a + c$

(c) $b^2 = ac$

(d) $b^2=4ac$

D

ax^2+bx+c

$= ax^2+ap^2-2apx$

$b=-2ap$

$c=ap^2$

$\rightarrow b^2=4a^2p^2$

$=4aap^2$

$b^2=4ac$

(25) If $p + q + r = 0$ then the value of

$$\frac{2p^2(q + r) + 2q^2(p + r) + 2r^2(p + q)}{pqr}.$$

$$\frac{-2p^3-2q^3-2r^3}{pqr}$$

$$\frac{-2(p^3+q^3+r^3)}{pqr}$$

$$\frac{-2\times3pqr}{pqr} = -6$$ (D)

यदि $p + q + r = 0$ तो

$$\frac{2p^2(q + r) + 2q^2(p + r) + 2r^2(p + q)}{pqr}$$ निम्न का मान होगा।

(a) $3pqr$

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

(c) 6

(d) -6

(26)

If $x = \frac{1}{\sqrt{3}-1}$ then find the value of $4x^3 + 2x^2 - 8x - 3$.

$x = \frac{\sqrt{3}+1}{2}$

$2x - 1 = \sqrt{3}$

$4x^2 + 1 - 4x = 3$

$4x^2 - 4x = 2$

$2x^2 - 2x = 1$

$4x^3 = 4x^2 + 2x$

$\times 3$

$6x^2 = 6x - 3$

$3 - 3 = 0$ (A)

यदि $x = \frac{1}{\sqrt{3}-1}$ तो $4x^3 + 2x^2 - 8x - 3$ का मान बताओं।

$4x^2 + 2x + 2x^2 - 8x - 3$

(a) 0

(b) 2

(c) −2

(d) $\sqrt{2}$

27 **Find the value of x** $\frac{1}{a+b+x} - \frac{1}{x} = \frac{1}{a} + \frac{1}{b}$.

Solve नहीं करना Option से

x का मान बताओं यदि $\frac{1}{a+b+x} - \frac{1}{x} = \frac{1}{a} + \frac{1}{b}$ हैं।

(a) –a, b

~~(b)~~ –a,–b

(c) a, –b

(d) a, b

B

28

x and y are positive real numbers such that $x\sqrt{x} + y\sqrt{y} = 183$ and $x\sqrt{y} + y\sqrt{x} = 182$ then value of $\frac{18}{5}(x + y)$.

यदि **x** तथा **y** घनात्मक प्राकृतिक संख्याऐ हो तो

$x\sqrt{x} + y\sqrt{y} = 183$ तथा $x\sqrt{y} + y\sqrt{x} = 182$ तब $\frac{18}{5}$

(x + y) का मान होगा।

(a) 73
(b) 146
(c) 63
(d) 126

B

$\sqrt{x} = a$

$\sqrt{y} = b$

$a^3 + b^3 = 183$

$3 \times a^2b + ab^2 = 182$

$(a+b)^3 = 729$

$a + b = 9$

$ab(a+b) = 182$

$ab = \frac{182}{9}$

$a^2 + b^2$

$\frac{18}{5}\left(81 - \frac{364}{9}\right)$

$2 \frac{18}{5} \times \frac{73}{9}$

(29) If $a^2 + 4b^2 + 16c^2 = 48$ and $ab + 4bc + 2ca=24$. Then what is the value of $a^2 + b^2 + c^2$?

यदि $a^2 + 4b^2 + 16c^2 = 48$ तथा $ab + 4bc + 2ca =24$ तब $a^2 + b^2 + c^2$ का मान होगा।

(a) 12 (b) 16

(c) 21 (d) 31

$a^2+4b^2+16c^2=48$

$2\times ab+4bc+2ca=24$

$x^2+y^2+z^2=48$

$xy+yz+zx=48$

$(x-y)^2+(y-z)^2+(z-x)^2=0$

$a=2b=4c$ $a=4$ $b=2$ $c=1$

$4^2+2^2+1^2$

30

If $\sqrt[3]{\frac{x}{729}} + \sqrt[3]{\frac{8x}{729}} + \sqrt[3]{\frac{27x}{5832}} = 1$ then find the value of x.

$\sqrt[3]{x}\left(\frac{1}{9} + \frac{2}{9} + \frac{3}{18}\right) = 1$

$\sqrt[3]{x} = 2$

$x = 8$

यदि $\sqrt[3]{\frac{x}{729}} + \sqrt[3]{\frac{8x}{729}} + \sqrt[3]{\frac{27x}{5832}} = 1$ तो x का मान बताओं

(a) 1 (b) 8

(c) 3 (d) 4

B

(31)

If $a = \frac{p-q}{p+q}, b = \frac{q-r}{q+r}, c = \frac{r-p}{r+p}$ then the value of $\frac{(1+a)(1+b)(1+c)}{(1-a)(1-b)(1-c)}$ is.

यदि $a = \frac{p-q}{p+q}, b = \frac{q-r}{q+r}, c = \frac{r-p}{r+p}$ तब $\frac{(1+a)(1+b)(1+c)}{(1-a)(1-b)(1-c)}$ का मान बताओं

(a) 1
(b) 0
(c) 121
(d) 11

$\frac{1}{a} = \frac{p+q}{p-q}$

$\frac{1+a}{1-a} = \frac{p}{q}$

$\frac{p}{q} \times \frac{q}{r} \times \frac{r}{p}$

1 (A)

(32) If $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$, then the value of $(m + n - p)^2$ is.

$\sqrt{m} + \sqrt{n} = \sqrt{p}$

$m + n + 2\sqrt{mn} = p$

$m + n - p = -2\sqrt{mn}$

$(\quad)^2 = 4mn$

यदि $\sqrt{m} + \sqrt{n} - \sqrt{p} = 0$, तो $(m + n - p)^2$ का मान बताओं।

(a) mn (b) −mn

(c) 2mn (d) 4mn

(D)

33

If $x = \frac{3+\sqrt{5}}{2}$ and $y = x^3$, then y satisfies the equation.

$\frac{27+5\sqrt{5}+27\sqrt{5}+45}{8}$

यदि $x = \frac{3+\sqrt{5}}{2}$ तथा $y = x^3$, तो y निम्न समीकरण को सन्तुष्ट करता है।

(a) $y^2 - 18y + 1 = 0$ (b) $y^2 + 18y + 1 = 0$

(c) $y^2 - 18y - 1 = 0$ (d) $y^2 + 18y - 1 = 0$

A

$y \to 9+4\sqrt{5}$

$y^2 = 161+72\sqrt{5}$

$18y = 162+72\sqrt{5}$

$18y - y^2 = 1 \Rightarrow y^2 - 18y + 1 = 0$

(34) If $a + b + c = 1$, $a^2 + b^2 + c^2 = 9$ and $a^3 + b^3 + c^3 = 1$, then find the value of $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$.

यदि $a + b + c = 1$, $a^2 + b^2 + c^2 = 9$ तथा $a^3 + b^3 + c^3 = 1$, तो निम्न $\frac{1}{a} + \frac{1}{b} + \frac{1}{c}$ का मान बताओं

(a) 4

(b) 1

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

(d) $\frac{1}{4}$

(33)

If a, b, c, d are positive integers such that a = bcd, b = cda, c = dab and d = abc then the value of $\frac{(a+b+c+d)^4}{(ab+bc+cd+da)^2}$.

$abcd = (abcd)^3$

$(abcd)^2 = 1$

$a = b = c = d = 1$

$\frac{4^4}{4^2} = 4^2 = 16$ (A)

यदि a, b, c, d घनात्मक पूर्णांक है, तो a = bcd, b = cda, c = dab ,d = abc तो $\frac{(a+b+c+d)^4}{(ab+bc+cd+da)^2}$ का मान होगा।

(a) 16
(b) 4
(c) 2
(d) 1

36 If $a^x = (x + y + z)^y$, $a^y = (x + y + z)^z$, $a^z = (x + y + z)^x$, then

यदि $a^x = (x + y + z)^y$, $a^y = (x + y + z)^z$, $a^z = (x + y + z)^x$, तो

$a^{x+y+z} = (x+y+z)^{x+y+z}$

(a) $3(x + y + z) = a$ (b) $2a = x + y + z$

(c) $x + y + z = a$ (d) $x = y = z = \frac{a}{3}$

37

If a, b, c are such that $a^2 + b^1 + c^{-1} = 2$, $a^2 + b^2 + c^2 = 6$, $a^3 + b^3 + c^3 = 8$, then $a^4 + b^4 + c^4$ is equal to.

16+1+1

यदि a, b, c इस प्रकार है $a + b + c = 2$, $a^2 + b^2 + c^2 = 6$, $a^3 + b^3 + c^3 = 8$, तब $a^4 + b^4 + c^4$ का मान है।

(a) 10 (b) 12

(c) 18 (d) None of these

$(ab+bc+ca)^2$

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

$(a^2+b^2+c^2)^2 - 2(ab^2+b^2c^2+c^2a^2)$

C

38

If $\frac{2x+3y}{a-2b} = \frac{4y+7z}{3b-c} = \frac{6z+5x}{2c-3a}$, find the value of $11x + 17y + 20z$.

$3 \times 2x+3y=K(a-2b)$

$2 \times 4y+7z=K(3b-c)$

$6z+5x=K(2c-3a)$

$11x+17y+20z$

$=K(3a-6b+6b-2(7c-3a))$

$=0$

यदि $\frac{2x+3y}{a-2b} = \frac{4y+7z}{3b-c} = \frac{6z+5x}{2c-3a}$ तो $11x + 17y + 20z$ का मान होगा।

(a) 0 (A)

(b) 1

(c) 2

(d) None of these

eqn Multiplication

39 $\left(\frac{a}{a+1}\right)^2 - 5\left(\frac{a}{a+1}\right) + 6 = 0$ then $\left(1+\frac{1}{a}\right)$ equals to.

$\frac{a+1}{a}$

$x^2 - 5x + 6 = 0$

$(x-3)(x-2) = 0$

$x = 3$

$x = 2$

1 1/2

3 1/2

(a) 2 or 3

(b) $\frac{1}{2}$ or $\frac{1}{3}$

(c) 1

(d) $-\frac{1}{2}$ or $-\frac{1}{3}$

B

40

$z = 3 + \sqrt{10}$, then $z^3 \frac{-1}{z^3}$

(a) 334 (b) 216

(c) 234 (d) 254

$\frac{1}{z} = \sqrt{10} - 3$

$z - \frac{1}{z} = 6$

41

$$2\left(z+\frac{1}{z}\right)=\sqrt{8}, z^{48}+z^{40}+z^{32}+z^{20}+1=?$$

(a) 4
(c) 3
(b) 1
(d) 2

$z+\frac{1}{z}=\sqrt{2}$

$z^2+\frac{1}{z^2}=0$

$z^4+1=0$

$z^4=-1$

C