Q. x का मान क्या होगा, जिससे व्यंजक (12x+18) और (16x-14) बराबर हो जाए?

Q. What is the value of x for which the expressions (12x+18) and (16x-14) become equal?

(a) 2
(b) 4
(c) 6
(d) 8

$12x+18$

96
$+18$
$\boxed{114}$

$16x-14$
$= 128-14$
$= \boxed{114}$

$(12x+18) = (16x-14)$

$(16x-12x) = (18+14)$

$4x = 32$

$x = 8$

Q. यदि $\left(x - \dfrac{1}{x}\right) = 11$, तो $\left(x^2 + \dfrac{1}{x^2}\right)$ का मान क्या है?

Q. If $\left(x - \dfrac{1}{x}\right) = 11$, then what is the value of $\left(x^2 + \right.$

$(A-B)^2 \qquad (11)^2$

$$\left(x - \frac{1}{x}\right) = (11)$$

20 → Square

$$x^2 + \frac{1}{x^2} - (2)\,x\cdot\frac{1}{x} = 121$$

$$\left(x^2 + \frac{1}{x^2}\right) = 121 + 2 = \boxed{123}$$

(a) 125 ✓

(b) 123

(c) 127

(d) 128

Q. यदि 5x+4y=25 और xy =15, तो 25x²+16y² का वर्गमूल क्या होगा?

Q. If 5x+4y=25 and xy =15, then what is the square root of 25x²+16y²?

(a) 5

(b) 25

(c) 125

(d) 10

$(A+B)^2$ (square)

$5x+4y=25 \quad ; (xy)=15$

$(5x)^2+(4y)^2+2(5x)(4y)=(625)$

$(25x^2+16y^2)+40(xy)=625$

$(25x^2+16y^2)=625-40\times15$

$=625-600=25$

$\sqrt{25}$

$\Rightarrow 5$

Q. यदि $(x-11)^3 + (x-12)^3 + (x-13)^3 = 3(x-11)(x-12)(x-13)$, तो $[x^2-9]$ का मान क्या होगा?

Q. If $(x-11)^3 + (x-12)^3 + (x-13)^3 = 3(x-11)(x-12)(x-13)$, Then find the value of $[x^2-9]$?

(a) 135

(b) 136

(c) 137

(d) 138

$(x-11)^3 + (x-12)^3 + (x-13)^3 = 3(x-11)(x-12)(x-13)$

$a^3 + b^3 + c^3 = 3abc$

$a+b+c = 0$

$(x-11) + (x-12) + (x-13) = 0$

$3x - 36 = 0 \Rightarrow 3x = 36$

$x = 12$

$x^2 - 9$

$(12)^2 - 9$

$144 - 9$

135

Q. यदि $5^x - 5^{(x-2)} = 120$, तो $x^{(x-1)}$ का मान क्या होगा?

Q. If $5^x - 5^{(x-2)} = 120$, then what is the value of $x^{(x-1)} = ?$

(a) 9
(c) 27
(b) 26
(d) 8

$$5^x - 5^{(x-2)} = 120$$

$$5^x\left[1 - 5^{-2}\right] = 120$$

$$5^x\left[1 - \frac{1}{25}\right] = 120$$

$$5^x\left[\frac{24}{25}\right] = 120$$

$$5^x = 125 = 5^3$$

$$x = 3$$

$$= x^{(x-1)}$$
$$= 3^{3-1}$$
$$= 3^2$$
$$= 9$$

Q. यदि $\left(7x + \dfrac{1}{9x}\right) = 63$, तो $\left(9x + \dfrac{1}{7x}\right)$ का मान क्या होगा?

Q. $\left(7x + \dfrac{1}{9x}\right) = 63$, then what is the value of $\left(9x + \dfrac{1}{7x}\right)$?

(a) 27
(b) 81
(c) 729
(d) 63

$$\frac{9x}{7}\left(7x + \frac{1}{9x}\right) = 63$$

$$\frac{9}{7}(7x) + \frac{9}{7}\left(\frac{1}{9x}\right) = \frac{9}{7} \times 63$$

$$\left(9x + \frac{1}{7x}\right) = \boxed{81}$$

Q. यदि $\frac{7+2\sqrt{3}}{2-\sqrt{3}} = a + \sqrt{3}b$, तो (a^2-b^2) का मान बताओ?

Q. If $\frac{7+2\sqrt{3}}{2-\sqrt{3}} = a + \sqrt{3}b$, then find the value of (a^2-b^2)?

$\frac{(7+2\sqrt{3})(2+\sqrt{3})}{(2-\sqrt{3})(2+\sqrt{3})}$

$a=20, b=11$

(a^2-b^2)

$= (20)^2 - (11)^2$

$= (20+11)(20-11)$

$\Rightarrow \frac{14+7\sqrt{3}+4\sqrt{3}+6}{(4-3)}$

$= 31 \times 9$

$\Rightarrow 20 + 11\sqrt{3} = a + \sqrt{3}b$

$= 279$

(a) 301

(b) 269

(c) 289

(d) 279

Q. यदि $\left(x^2 + \frac{1}{x^2}\right) = 47$ और $x > 0$ तो $\left(x + \frac{1}{x}\right)$ का मान होगा?

Q. If $\left(x^2 + \frac{1}{x^2}\right) = 47$ and $x > 0$ then what is the value of $\left(x + \frac{1}{x}\right)$?

(a) 5
(b) 6
(c) 7 ✓
(d) 8

$$2 + x^2 + \frac{1}{x^2} = 47 + 2$$

$$\left(x + \frac{1}{x}\right)^2 = 49$$

$$\Rightarrow \left(x + \frac{1}{x}\right) = \sqrt{49} = 7$$

UPSS SC

Q. यदि $(a^2+b^2+c^2) = 23$ और $(ab+bc+ca) = 13$, तो $(a+b+c)$ का मान क्या होगा ?

Q. If $(a^2+b^2+c^2) = 23$ and $(ab+bc+ca) = 13$, then what will be the value of $(a+b+c)$?

(a) 9
(b) 8
(c) 7 ✓
(d) 6

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

$$= 23 + 2 \times (13)$$

$$(a+b+c)^2 = 23 + 26$$

$$(a+b+c)^2 = 49$$

$$\Rightarrow (a+b+c) = \sqrt{49} = 7$$

Q. यदि (19-4x) - (15x-20) = 1, तो [x^3+3x^2+1] का मान है:

Q. If (19-4x) - (15x-20) = 1, then the value of [x^3+3x^2+1] is:

(a) 19
(b) 20
(c) 21 ✓
(d) 23

$$(19-4x)-(15x-20)=1$$

$$19-4x-15x+20=1$$

$$-19x+39=1$$

$$+19x=+38 \quad 2$$

$$\boxed{x=2}$$

$$(x^3+3x^2+1)=8+3(4)+1$$
$$=8+12+1=\boxed{21}$$

Q. यदि $\left(p + \dfrac{1}{p}\right)^2 = 3$, तो $[p^{21600} + p^{2160} + p^{216} + p^{36} + p^6 +$

$$\left(p^3 + \dfrac{1}{p^3}\right) = \left(p + \dfrac{1}{p}\right)^3 - 3\left(p + \dfrac{1}{p}\right)$$

$$\left(\dfrac{p^6 + 1}{p^3}\right) = 3\sqrt{3} - 3\sqrt{3} = 0 \checkmark$$

$p^6 + 1 = 0$

$p^6 = -1$

$$\left(p + \dfrac{1}{p}\right)^2 = 3$$

$$\left(p + \dfrac{1}{p}\right) = \sqrt{3}$$

$$p^6 = -1$$

$$[p^6]^{3600} + [p^6]^{360} + [p^6]^{36} + (p^6)^6 + p^6 + 1$$

$$= (-1)^{3600} + (-1)^{360} + (-1)^{36} + (-1)^6 + (-1) + 1$$

$$= 1 + 1 + 1 + 1 - 1 + 1$$

$$= ④$$

(a) 4
(b) 6
(c) 7
(d) 8

Q. यदि a=211, b=212, c=213, तो (a²+b²+c²-ab-bc-ca) का मान क्या होगा?

Q. If a=211, b=212, c=213, then find the value of (a²+b²+c²-ab-bc-ca).

(a) 3
(b) 4
(c) 5
(d) 6

$$\left(a^2+b^2+c^2-ab-bc-ca\right)=\frac{1}{2}\left[(a-b)^2+(b-c)^2+(c-a)^2\right]$$

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

$$=\frac{1}{2}\left[1+1+4\right]=\frac{1}{2}(6)=3$$
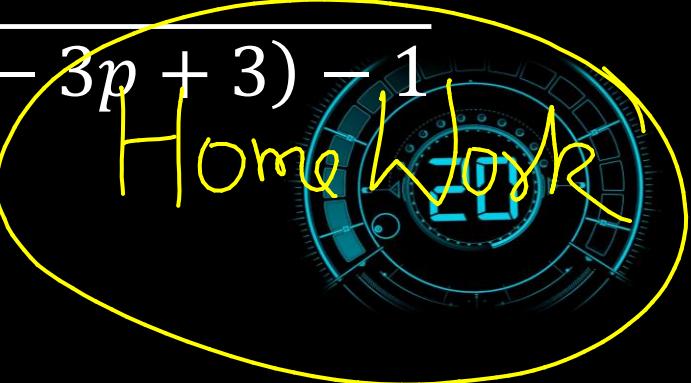
Q. यदि p= 999, तो $\sqrt[3]{p(p^2 - 3p + 3) - 1}$ का मान बताईये.

Q. If p= 999, then find the value of $\sqrt[3]{p(p^2 - 3p + 3) - 1}$

Home Work

(a) 998

(b) 1000

(c) 997

(d) 1001