

128. If $24\sqrt{3}x^3 + 2\sqrt{2}y^3 = (2\sqrt{3}x + \sqrt{2}y)(Ax^2 + Bxy + Cy^2)$ then $(2A + \sqrt{6}B - C)$ is equal to:

अगर $24\sqrt{3}x^3 + 2\sqrt{2}y^3 = (2\sqrt{3}x + \sqrt{2}y) \cdot (Ax^2 + Bxy + Cy^2)$ है, तो $(2A + \sqrt{6}B - C)$ बराबर है:

(SSC CGL Mains 2018)

[A] 10

[B] 14

[C] 6

[D] 8

$$24 - 12 - 2 = 10$$

$$(2\sqrt{3}x)^3 + (\sqrt{2}y)^3 = (2\sqrt{3}x + \sqrt{2}y) \cdot (12x^2 - 2\sqrt{6}xy + 2y^2)$$

$$\sqrt{n}^2 = n$$
$$\sqrt{n}^3 = n\sqrt{n}$$

$$A = 12$$
$$B = -2\sqrt{6}$$
$$C = 2$$

129. If $40\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y) \times (Ax^2 + Bxy + Cy^2)$, then what is the value of $\sqrt{B^2 + C^2 - A}$?

यदि $40\sqrt{5}x^3 - 3\sqrt{3}y^3 = (2\sqrt{5}x - \sqrt{3}y) \times (Ax^2 + Bxy + Cy^2)$ है, तो $\sqrt{B^2 + C^2 - A}$ का मान क्या है?

[A] 11

[C] 8

[B] 7

[D] 9

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ 20 & 2\sqrt{15} & 3 \end{array} \quad = \sqrt{60 + 9 - 20}$$

$$= \sqrt{49}$$

$$= 7$$

130. If $8x^3 - 27y^3 = (Ax + By)(Cx^2 - Dy^2 + Exy)$, then the value of $(A + B + C + D + E)$ is:
 यदि $8x^3 - 27y^3 = (Ax + By)(Cx^2 - Dy^2 + Exy)$ है, तो $(A + B + C + D + E)$ का मान ज्ञात कीजिए।
 (RRB NTPC GRADUATE LEVEL CBT-1 2026)

[A] -3

[B] -1

[C] 0

[D] 2

$$2 - 3 + 4 - 9 + 6 = 0$$

$$(2x)^3 - (3y)^3$$

$$-D = 9$$

131. If $x^6 - 512y^6 = (x^2 + Ay^2)(x^4 - Bx^2y^2 + Cy^4)$, then what is the value of $(A+B-C)$?

यदि $x^6 - 512y^6 = (x^2 + Ay^2)(x^4 - Bx^2y^2 + Cy^4)$ है, तो $(A+B-C)$ का मान ज्ञात कीजिए?

(CPO 2019)

[A] ~~-80~~

[B] -72

[C] 72

[D] 48

$$-8 - 8 - 64 = -80$$

$$(x^2)^3 - (8y^2)^3$$

$$-B = 8$$

132. If $x^6 - 6\sqrt{6}y^6 = (x^2 + Ay^2)(x^4 + Bx^2y^2 + Cy^4)$, then what will be value of $(A^2 - B^2 + C^2)$?

यदि $x^6 - 6\sqrt{6}y^6 = (x^2 + Ay^2)(x^4 + Bx^2y^2 + Cy^4)$ है, तो $(A^2 - B^2 + C^2)$ का मान ज्ञात करें।

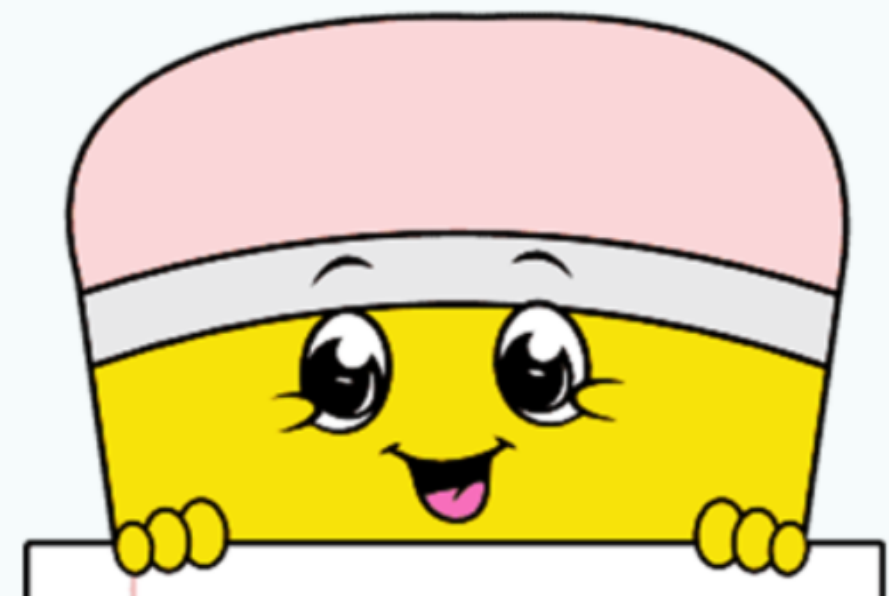
[A] 27

[B] 42

[C] 36

[D] 18

$a \rightarrow 3$
 $b \rightarrow 2$



$$(a + b)^2 = a^2 + b^2 + 2ab$$

$$(3 + 2)^2 = 3^2 + 2^2 + 2 \times 3 \times 2$$

$$25 = 25$$

$9 + 4 + 12$



133. If $8(x+y)^3 - 27(x-y)^3 = (5y-x)(Ax^2 + By^2 + Cxy)$, then what is the value of $(A+B-C)$?
 यदि $8(x+y)^3 - 27(x-y)^3 = (5y-x)(Ax^2 + By^2 + Cxy)$ है, तो $(A+B-C)$ का मान ज्ञात करें।

[A] 16

[C] 36

[B] -26

[D] -16

$$95 + 28 + 30 = 153$$

$$[2(x+y)]^3 - [3(x-y)]^3 = (5y-x)[4(x+y)^2 + 9(x-y)^2 + 6(x^2 - y^2)]$$

$$(19x^2 + 7y^2 - 10xy)$$

134. If $(x+y)^3 + 27(x-y)^3 = (Ax - 2y)(Bx^2 + Cxy + 13y^2)$, then the value of $A - B - C$ is:

यदि $(x+y)^3 + 27(x-y)^3 = (4x - 2y)(Bx^2 + Cxy + 13y^2)$ है, तो $A - (B+C)$ का मान ज्ञात करें।

[A] 27

[B] 20

[C] 15

[D] 13

$$4 + 9 = 13$$

put $x=y=1$

$$[(x+y)^3 + 27(x-y)^3]$$

$$\frac{4}{8} = \frac{2}{2} \cdot (B+C+13)$$

$$-9 = B+C$$

$$A=4$$

135. Given that $(2x + y)^3 - (x + 2y)^3 = (x - y) [A(x^2 + y^2) + Bxy]$, the value of $(2A - B)$ is:
दिया गया है कि $(2x + y)^3 - (x + 2y)^3 = (x - y) [A(x^2 + y^2) + Bxy]$ है, तो $(2A - B)$ का मान ज्ञात करें।

[A] 7

[B] 6

[C] 0

[D] 1

put $x=1$ & $y=-1$

$$1 - (-1) = 2 \times (2A - B)$$

$$1 = 2A - B$$

$$\begin{aligned} (a+b)^3 &= a^3 + b^3 + 3a^2b + 3ab^2 \\ (a-b)^3 &= a^3 - b^3 - 3a^2b + 3ab^2 \end{aligned}$$

$$\begin{aligned} (a+b)^3 + (a-b)^3 &= \\ (a+b)^3 - (a-b)^3 &= \end{aligned}$$

$$2a^3 + 6ab^2 = 2a(a^2 + 3b^2)$$

$$2b^3 + 6a^2b = 2b(b^2 + 3a^2)$$

136. Simplify the given expression: $\frac{(x+3)^3 + (x-3)^3}{x^2+27}$?

दिए गए व्यंजक $\frac{(x+3)^3 + (x-3)^3}{x^2+27}$ को सरल बनाएं:

[A] $3x$

[C] $4x$

[B] x

[D] $2x$

$$\frac{2x(x^2+27)}{x^2+27}$$

$$2x$$

137. Find the square root of $(3 + \sqrt{5})^3 + (3 - \sqrt{5})^3$?

$\sqrt{(3 + \sqrt{5})^3 + (3 - \sqrt{5})^3}$ का वर्गमूल ज्ञात कीजिये?

[A] 9

[C] 14

[B] 12

[D] 6

$$= \sqrt{2 \times 3(9 + 3 \times 5)}$$

$$= \sqrt{44}$$

$$= 12$$

138. If $(3x + 2y)^3 + (3x - 2y)^3 = 3kx(3x^2 + 4y^2)$, then the value of k will be:

यदि $(3x + 2y)^3 + (3x - 2y)^3 = 3kx(3x^2 + 4y^2)$, है, तो k का मान ज्ञात करें।

[A] 18

[B] 9

[C] 3

[D] 6

put $x=1, y=0$

$$27 + 27 = 3k \times 3$$

$$6 = k$$

139. If $(4x + 2y)^3 + (4x - 2y)^3 = 16(Ax^3 + Bxy^2)$, then what is the value of $\frac{1}{2}(\sqrt{A^2 + B^2})$?

यदि $(4x + 2y)^3 + (4x - 2y)^3 = 16(Ax^3 + Bxy^2)$, तो $\frac{1}{2}(\sqrt{A^2 + B^2})$ का मान क्या है?

[A] 8

[B] 3

[C] 5 ✓

[D] 7

$$= \frac{1}{2} \times \sqrt{64 + 36} \\ = 5$$

$$= 2 \times 4 \times (16x^3 + 3 \times 4y^3)$$

$$= 16(8x^3 + 6xy^3)$$

140. Simplify the given expression.

दिए गए व्यंजक का मान ज्ञात करें।

$$-2 \times \frac{2}{x} \left(\frac{4}{x^2} + 3 \cdot x^2 \right)$$
$$-4 \left(\frac{4}{x^3} + 3x \right)$$

$$\left(x - \frac{2}{x} \right)^3 - \left(x + \frac{2}{x} \right)^3$$

[A] $-4 \left(3x + \frac{4}{x^3} \right)$

[C] $-4 \left(x + \frac{4}{x^3} \right)$

[B] $-4 \left(3x - \frac{4}{x^3} \right)$

[D] $2 \left(x - \frac{4}{x^3} \right)$

$$-(a+b)^3 + (a-b)^3 = -2b(b^2 + 3a^2)$$

141. If $(2x + 3y)^3 - (2x - 3y)^3 = 3y[Ax^2 + By^2]$, then what is the value of $(A - B)$?
यदि $(2x + 3y)^3 - (2x - 3y)^3 = 3y[Ax^2 + By^2]$ है, तो $(A - B)$ का मान क्या होगा?

[A] 12

[B] 9

[C] 3

[D] 6



$$\text{If, } \frac{a}{b} = \frac{c}{d} \Rightarrow \frac{a+b}{a-b} = \frac{c+d}{c-d}$$

142. If $\frac{x^3 + 3x}{3x^2 + 1} = \frac{234}{109}$ then $x^2 + 5 = ?$

यदि $\frac{x^3 + 3x}{3x^2 + 1} = \frac{234}{109}$, तो $x^2 + 5 = ?$
 $36+5$

[A] 31

[B] 41

[C] 38

[D] 46

$$\frac{x^3 + 3x + 3x^2 + 1}{x^3 + 3x - 3x^2 - 1} = \frac{234 + 109}{234 - 109}$$

$$\frac{(x+1)^3}{(x-1)^3} = \frac{343}{125} \Rightarrow \frac{x+1}{x-1} = \frac{7}{5}$$

143. If $\frac{64x^3 + 108x}{144x^2 + 27} = \frac{1463}{734}$ then $(8x - 43)^2$?

यदि $\frac{64x^3 + 108x}{144x^2 + 27} = \frac{1463}{734}$ है, तो $(8x - 43)^2$ का मान क्या होगा?

[A] 64

[C] 100

[B] 81

[D] 121

$8x = 33$

$$\frac{(4x+3)^3}{(4x-3)^3} = \frac{2197}{729}$$

$$\frac{4x+3}{4x-3} = \frac{13}{9}$$

$$\Rightarrow \frac{8x}{26} = \frac{22}{14}$$



144. If $x = 2 + \sqrt{3}$, then find the value of $x^4 - 8x^3 + 16x^2$.

यदि $x = 2 + \sqrt{3}$ है, तो $x^4 - 8x^3 + 16x^2$ का मान ज्ञात कीजिए।

[A] -1

☒ [B] 1

[C] 0

[D] 2

$$(x-2)^2 = \sqrt{3}^2$$
$$(x^2 - 4x) = (-1)^2 = 1$$

145. If $x = \sqrt[3]{5} + 2$, then the value of $x^3 - 6x^2 + 12x - 12$ is equal to:

यदि $x = \sqrt[3]{5} + 2$ है तो, $x^3 - 6x^2 + 12x - 12$ का मान है?

[A] 0

[B] 2

[C] 1

[D] -1

$$(x-2)^3 = (\sqrt[3]{5})^3$$

$$x^3 - 8 - 6x^2 + 12x = 5 - 4 = 1$$

146. If $\sqrt{x} = \sqrt{3} - \sqrt{5}$, then the value of $x^2 - 16x + 6$ is:

यदि $\sqrt{x} = (\sqrt{3} - \sqrt{5})$ है, तो $x^2 - 16x + 6$ का मान है:

[A] 0

[B] 4

[C] 2

[D] -2

$$x = 8 - 2\sqrt{15}$$

$$(x-8) = (-2\sqrt{15})$$

$$x^2 - 16x = -4$$

147. If $x = 7^{\frac{2}{3}} - 7^{\frac{-2}{3}}$, then the value of $x^3 + 3x$ is:

यदि $x^3 = 7^{\frac{2}{3}} - 7^{\frac{-2}{3}}$ है, तो $x^3 + 3x$ का मान ज्ञात कीजिए।

(RRB NTPC GRADUATE LEVEL 2025)

[A] $\frac{790}{343}$

[C] $\frac{2500}{342}$

[B] $\frac{2400}{49}$

[D] $\frac{800}{49}$

$a^{-n} = \frac{1}{a^n}$

$$x^3 = 7^2 - 7^{-2} - 3 \times 7^{\frac{2}{3}} \times 7^{\frac{-2}{3}}$$

$$x^3 + 3x = 49 - \frac{1}{49} = \frac{2400}{49}$$

148. If $x = 2 + 2^{2/3} + 2^{1/3}$, then what is the value of $x^3 - 6x^2 + 6x + 18$?

यदि $x = 2 + 2^{2/3} + 2^{1/3}$, तो $x^3 - 6x^2 + 6x + 18$ का मान क्या है?

[A] 30

[B] 20

[C] 10

[D] 22

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

Cube on both sides

$$x^3 - 8 - 6x^2 + 12x = 2^2 + 2 + 3 \times 2 \times (x - 2)$$

$$x^3 - 6x^2 + 6x = 2$$

149. $x = 7 + 7^{\frac{2}{3}} + 7^{\frac{1}{3}}$, then which of the options below is correct?

यदि $x = 7 + 7^{\frac{2}{3}} + 7^{\frac{1}{3}}$, तो नीचे दिए गए विकल्पों में से कौन सा विकल्प सही है?

(IB ACIO 2023)

[A] $x^3 + 21x^2 - 126x - 252 = 0$

[B] $x^3 + 21x^2 - 126x + 252 = 0$

[C] $x^3 - 21x^2 - 126x + 252 = 0$

[D] $x^3 - 21x^2 + 126x - 252 = 0$

150. If $a = \sqrt[3]{2} + \sqrt[3]{3} + 1$, then $\frac{[(a-1)^3 - 5]^3}{(a-1)^3} = ?$

यदि $a = \sqrt[3]{2} + \sqrt[3]{3} + 1$, तो $\frac{[(a-1)^3 - 5]^3}{(a-1)^3} = ?$

[A] 165

[C] 163

[B] 162

[D] 164

$$a-1 = \sqrt[3]{2} + \sqrt[3]{3}$$

$$(a-1)^3 = 2 + 3 + 3\sqrt[3]{6} \cdot (a-1)$$

$$\frac{(a-1)^3 - 5}{a-1} = 3\sqrt[3]{6}$$

$$\left\{ \frac{(a-1)^3 - 5}{(a-1)} \right\}^3 = (3 \times \sqrt[3]{6})^3 \\ = 27 \times 6 \\ = 162$$

151. If $x + 1 = x^2$ and $x > 0$, then $2x^4$ is.

यदि $x + 1 = x^2$ और $x > 0$ है, तो $2x^4$ का मान होगा।

(CAT 2017)

[A] $6 + 4\sqrt{5}$

[B] $3 + 5\sqrt{5}$

[C] $5 + 3\sqrt{5}$

☒ [D] $7 + 3\sqrt{5}$

$$x^2 = x + 1 \implies$$

$$x^2 - x - 1 = 0$$

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

$$x = \frac{1 + \sqrt{5}}{2}$$

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

$$x^4 = 3x + 2 = 3\left(\frac{1 + \sqrt{5}}{2}\right) + 2 = 7 + 3\sqrt{5}$$

152. If $x^2 + x = 1$, then find $\frac{x^5 + 8}{x+1}$?

यदि $x^2 + x = 1$ है, तो $\frac{x^5 + 8}{x+1}$ ज्ञात कीजिये?

[A] 3

[C] 5

$$\begin{aligned} &= \frac{5x+5}{x+1} \\ &= 5 \end{aligned}$$

[B] 2

[D] 4

$$x^2 = 1 - x$$

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

$$x (x^4 = 1 - x^2)$$

$$x^5 = x - x^3 = x - 3(1 - x) = 5x - 3$$