

JSTSE : PREVIOUS YEARS
 (Mathematics : Algebraic Identities)

1. If $x + x^{-1} = 4$ Then $x^3 + \frac{1}{x^3}$ would be (2012)

- (a) 64 (b) 52
 (c) 32 (d) 12

Ans. (b)

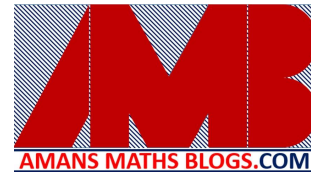
2. Value of $(x + y)^{-1} (x^{-1} + y^{-1})$ is (2013)

- (a) 1 (b) $(x + y)$
 (c) $x^{-1}y^{-1}$ (d) $(xy)^{-1} (x + y)^{-1}$

Ans. (c)

3. $\left(\frac{1}{a} \right)^{-3}$, the value of $a^{-3} + \frac{1}{a}$ will be (2013)

- (a) 0 (b) $-2\sqrt{3}$
 (c) $3\sqrt{3}$ (d) $6\sqrt{3}$



Ans. (a)

4. If $a + b + c = 0$, then the value of $\frac{(b+c)^2}{bc} + \frac{(c+a)^2}{ca} + \frac{(a+b)^2}{ab}$ is (2014)

- (a) 0 (b) 1
 (c) 2 (d) 3

Ans. (d)

5. If $x^2 - 5x - 1 = 0$, then the value of $x^2 + \frac{1}{x^2}$ is (2014)

- (a) 20 (b) 27
 (c) 25 (d) -25

Ans. (b)



154. On simplifying $\left(\frac{1}{2}\right)^3 + \left(\frac{1}{3}\right)^3 - \left(\frac{5}{6}\right)^3$ we get (2011)

- (1) 0 (2) -1
 (3) $\frac{-5}{12}$ (4) $\frac{5}{12}$

Ans. (4)

175. if both $(x - 2)$ and $\left(x - \frac{1}{2}\right)$ are factors of $px^2 + 5x + r$ then (2011)

- (1) $P = r$ (2) $P > r$
 (3) $P < r$ (4) None of these

Ans. (1)

173. Factors of $(3m^2 - 2m)(6 - 3m^2 + 2m) - 5$ are (2014)
 (1) $(3m + 1)(3m - 5)(m - 1)(m + 1)$ (2) $(-3m + 1)(3m - 5)(m - 1)(m + 1)$
 (3) $(3m - 1)(3m + 5)(m - 1)(m + 2)$ (4) $(-3m - 1)(3m - 5)(m - 2)(m + 1)$

Ans. (2)

52. Factors of $(x^4 + x^2 + 1)$ are (2015)
 (a) $(x^2 + x + 1)(x^2 + x - 1)$ (b) $(x^2 - x + 1)(x^2 + x + 1)$
 (c) $(x^2 - x + 1)(x^2 + x - 1)$ (d) $(x^2 + 1)(x^2 - 1)$

Ans. (2)

56. If $3a - 2b + c = 0$, then the value of $9a^2 - 4b^2 + c^2 + 6ac$ is (2015)
 (a) -1 (b) 1
 (c) 2 (d) 0

Ans. (4)