

CDS 1 2025

LIVE

MATHS

ALGEBRA - 1

MCQS



NAVJYOTI SIR

Crack
EXAMS



17 Feb 2025 Live Classes Schedule

- ✓ 9:00AM --- 17 FEBRUARY 2025 DAILY DEFENCE UPDATES --- DIVYANSHU SIR
- ✓ 10:00AM --- 17 FEBRUARY 2025 DAILY CURRENT AFFAIRS --- RUBY MA'AM

SSB INTERVIEW LIVE CLASSES

- 9:30AM --- COMPLETE PSYCH TEST --- ANURADHA MA'AM

AFCAT 1 2025 LIVE CLASSES

- 3:00PM --- STATIC GK - INDIA & UNO --- DIVYANSHU SIR
- 1:00PM --- ENGLISH - ONE WORD SUBSTITUTION - CLASS 1 --- ANURADHA MA'AM

NDA 1 2025 LIVE CLASSES

- ✓ 10:00AM --- MATHS - DIFFERENTIABILITY --- NAVJYOTI SIR
- ✓ 11:30AM --- PHYSICAL GEOGRAPHY - CLASS 3 --- RUBY MA'AM
- ✓ 1:00PM --- BIOLOGY - CLASS 6 --- SHIVANGI MA'AM
- ✓ 4:30PM --- ENGLISH - ORDERING OF WORDS - CLASS 1 --- ANURADHA MA'AM

CDS 1 2025 LIVE CLASSES

- ✓ 11:30AM --- PHYSICAL GEOGRAPHY - CLASS 3 --- RUBY MA'AM
- ✓ 1:00PM --- BIOLOGY - CLASS 6 --- SHIVANGI MA'AM
- ✓ 4:30PM --- ENGLISH - ORDERING OF WORDS - CLASS 1 --- ANURADHA MA'AM
- ✓ 5:30PM --- MATHS - ALGEBRA - CLASS 1 --- NAVJYOTI SIR



Q) If $4x + \frac{1}{x} = 5$, $x \neq 0$, then the value of $\frac{5x}{4x^2 + 10x + 1}$ is

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) 3

$$4x + \frac{1}{x} = 5$$

$$\Rightarrow x = 1$$

$$\frac{5(1)}{4(1)^2 + 10(1) + 1} = \frac{5}{4 + 10 + 1} = \frac{5}{15} = \frac{1}{3}$$

Q) If $4x + \frac{1}{x} = 5$, $x \neq 0$, then the value of $\frac{5x}{4x^2 + 10x + 1}$ is

- (a) $\frac{1}{2}$ (b) $\frac{1}{3}$ (c) $\frac{2}{3}$ (d) 3

Ans: (b)

Q) If $x^8 - 1442x^4 + 1 = 0$, then a possible value of

$x - \frac{1}{x}$ is:

- (a) 5 (b) 8 (c) 4 (d) 6

$$x^8 - 1442x^4 + 1 = 0$$

Dividing by x^4 ,

$$x^4 - 1442 + \frac{1}{x^4} = 0$$

$$\underline{x^4 + \frac{1}{x^4}} = 1442$$

$$\left(x^2 + \frac{1}{x^2}\right)^2 + 2 = 1442$$

$$\underline{\left(x^2 + \frac{1}{x^2}\right)} - 2 = 1442$$

$$1440 = \alpha$$

$$\underline{1444}$$

$$\frac{32}{\alpha} \quad \frac{38}{\alpha}$$

$$\left(x^2 + \frac{1}{x^2}\right)^2 = 1444$$

$$\left(x - \frac{1}{x}\right)^2 + 2 = 38$$

$$\left(x - \frac{1}{x}\right)^2 = 36$$

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

Q) If $x^8 - 1442x^4 + 1 = 0$, then a possible value of

$x - \frac{1}{x}$ is:

- (a) 5 (b) 8 (c) 4 (d) 6

Ans: (d)

Q) For what value of k , does the equation
 $[kx^2 + (2k + 6)x + 16 = 0]$ have equal roots?

- (a) 1 and 9 (b) -9 and 1
 (c) -1 and 9 (d) -1 and -9

Discriminant, $D = b^2 - 4ac = 0$ for $ax^2 + bx + c = 0$ (quadratic condition)

$$(2k+6)^2 - 4(k)(16) = 0$$

$$4k^2 + 24k + 36 - 64k = 0$$

$$4k^2 - 40k + 36 = 0$$

$$\underline{k^2 - 10k + 9 = 0}$$

$$\underline{k = 1 \text{ and } 9}$$

- Q) For what value of k , does the equation
 $[kx^2 + (2k + 6)x + 16 = 0]$ have equal roots?
- (a) 1 and 9 (b) -9 and 1
(c) -1 and 9 (d) -1 and -9

Ans: (a)

Q) If $a^3 + 3a^2 + 9a = 1$, then what is the value of $a^3 + \frac{3}{a}$?

- (a) 31 (b) 26 (c) 28 (d) 24

$$\begin{array}{l}
 a^3 + 3a^2 + 9a = 1 \quad \times a \\
 \hline
 a^4 + 3a^3 + 9a^2 = a \quad (1)
 \end{array}
 \quad \Bigg| \quad
 \begin{array}{l}
 a^3 + 3a^2 + 9a = 1 \quad \times 3 \\
 \hline
 3a^3 + 9a^2 + 27a = 3 \quad (2)
 \end{array}$$

(1) - (2),

$$a^4 - 27a = a - 3$$

$$a^4 + 3 = 28a$$

Divide by a ,

$$a^3 + \frac{3}{a} = \boxed{28}$$

Q) If $a^3 + 3a^2 + 9a = 1$, then what is the value of $a^3 + (3/a)$?

- (a) 31 (b) 26 (c) 28 (d) 24

Ans: (c)

Q) If $\frac{x}{(2x+y+z)} = \frac{y}{(x+2y+z)} = \frac{z}{(x+y+2z)} = a$,

then find 'a' if $x+y+z \neq 0$

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

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

(c) $\frac{1}{8}$

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

$$(x+y+z) = a(4x+4y+4z)$$

$$1 = a(4)$$

$$\underline{\underline{a = \frac{1}{4}}}$$

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

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

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

Q) If $\frac{x}{(2x + y + z)} = \frac{y}{(x + 2y + z)} = \frac{z}{(x + y + 2z)} = a$,

then find 'a' if $x + y + z \neq 0$

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

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

(c) $\frac{1}{8}$

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

Ans: (b)

Q) If $x = \frac{4ab}{a+b}$, then the value of $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is equal to:

- (a) 0 (b) 1
 (c) 2 (d) None of these

$$x = \frac{2a \cdot 2b}{a+b}$$

$$\frac{x+2a}{x+2b} = \frac{a+3b}{b-a}$$

$$\frac{x}{2a} = \frac{2b}{a+b}$$

$$\frac{x}{2b} = \frac{2a}{a+b}$$

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

$$\frac{x+2b}{x-2b} = \frac{3a+b}{a-b}$$

$$\frac{a+3b-3a-b}{b-a}$$

$$\frac{2(b-a)}{b-a} = 2$$

Q) If $x = \frac{4ab}{a+b}$, then the value of $\frac{x+2a}{x-2a} + \frac{x+2b}{x-2b}$ is equal to:

(a) 0

(b) 1

(c) 2

(d) None of these

Ans: (c)

Q) If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$, then $x^2 + \frac{1}{x^2}$ is equal to:

- (a) 18 (b) 14 (c) 16 (d) 12

$$x + \frac{1}{x} + 2 = 6$$

$$x + \frac{1}{x} = 4$$

$$x^2 + \frac{1}{x^2} + 2 = 16 \Rightarrow$$

$$x^2 + \frac{1}{x^2} = 14$$

Q) If $\sqrt{x} + \frac{1}{\sqrt{x}} = \sqrt{6}$, then $x^2 + \frac{1}{x^2}$ is equal to:

- (a) 18 (b) 14 (c) 16 (d) 12

Ans: (b)

Q) A man has ₹ 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has ?

(a) 45

(b) 60

(c) 75

(d) 90

$$1(x) + 5(x) + 10(x) = 480$$

$$16x = 480$$

$$\underline{x = 30}$$

$$x + x + x = 3x$$

$$= 3 \times 30 = 90$$

Q) A man has ₹ 480 in the denominations of one-rupee notes, five-rupee notes and ten-rupee notes. The number of notes of each denomination is equal. What is the total number of notes that he has ?

(a) 45

(b) 60

(c) 75

(d) 90

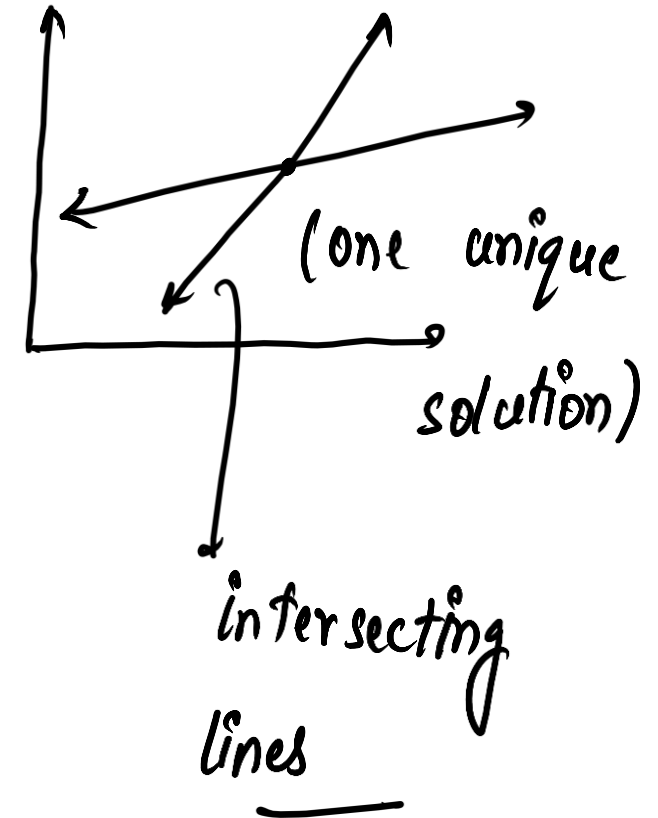
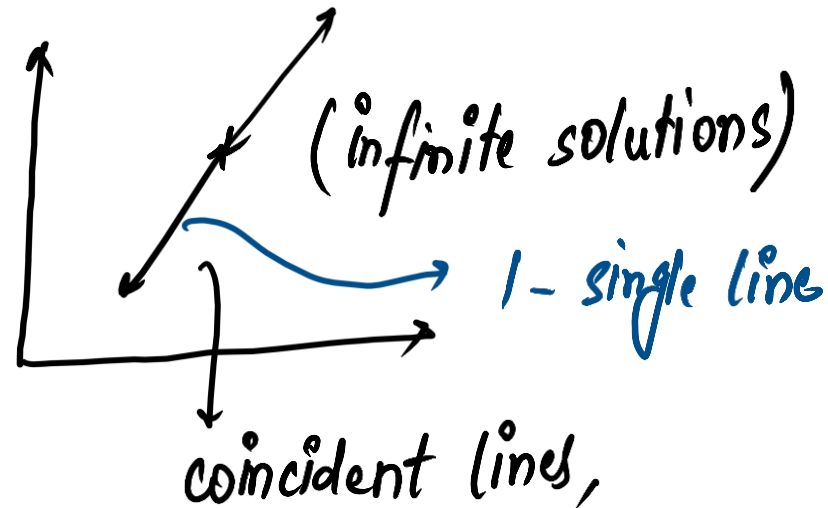
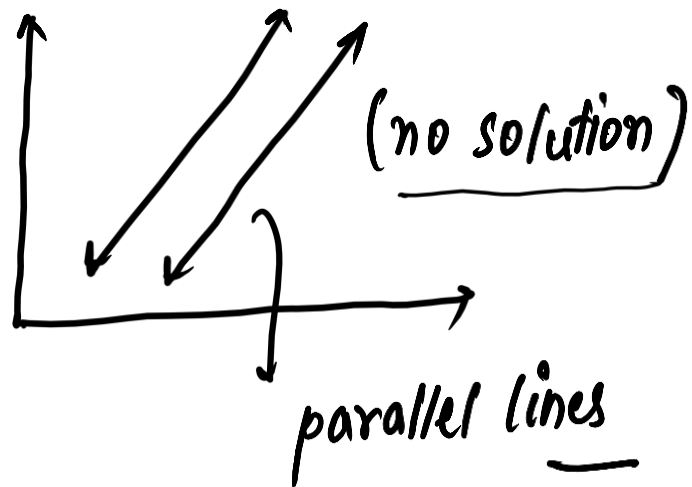
Ans: (d)

Q) The graphs of $ax + by = c$, $dx + ey = f$ will be:

- I. parallel, if the system has no solution.
- II. co-incident, if the system has finite number of solutions.
- III. intersecting, if the system has only one solution.

Which of the above statements are correct?

- (a) Both I and II
- (b) Both II and III
- (c) Both I and III
- (d) All of these



Q) The graphs of $ax + by = c$, $dx + ey = f$ will be:

- I. parallel, if the system has no solution.
- II. co-incident, if the system has finite number of solutions.
- III. intersecting, if the system has only one solution.

Which of the above statements are correct?

- (a) Both I and II
- (b) Both II and III
- (c) Both I and III
- (d) All of these

Ans: (c)

Q) A certain number of two digits is three times the sum of its digits. If 45 is added to the number, then the digits will be reversed. What is the sum of the squares of the two digits of the number ?

(a) 41

(b) 45

(c) 53

(d) 64

Ten's place digit = x ; Unit place digit = y

$$10x + y = 3(x + y)$$

$$\underline{7x = 2y}$$

$$y = \frac{7}{2}x$$

$$10x + y + 45 = \underline{10y + x}$$

$$9x - 9y = -45$$

$$y - x = 5 \Rightarrow \frac{7}{2}x - x = 5$$

$$\frac{7}{2}x - x = 5$$

$$\frac{5x}{2} = 5$$

$$x = 2$$

$$y = \frac{7}{2}x = \frac{7}{2} \times 2 = 7$$

$$x^2 + y^2 = 2^2 + 7^2 = 53$$

Q) A certain number of two digits is three times the sum of its digits. If 45 is added to the number, then the digits will be reversed. What is the sum of the squares of the two digits of the number ?

(a) 41

(b) 45

(c) 53

(d) 64

Ans: (c)

Q) If $\frac{x}{2} + \frac{y}{3} = 4$ and $\frac{2}{x} + \frac{3}{y} = 1$, then what is $x + y$ equal to?


(a) 11

(b) 10

(c) 9

(d) 8

$$\frac{3x + 2y}{\quad} = 24 \qquad \frac{2y + 3x}{\quad} = xy$$



$$\frac{xy}{\quad} = 24$$

	Sum
1×24	25
6×4	<u>10</u>
2×12	14
3×8	11

Q) If $\frac{x}{2} + \frac{y}{3} = 4$ and $\frac{2}{x} + \frac{3}{y} = 1$, then what is $x + y$ equal to?

(a) 11

(b) 10

(c) 9

(d) 8

Ans: (b)

Q) What is the value of $\frac{(x-y)^3 + (y-z)^3 + (z-x)^3}{9(x-y)(y-z)(z-x)}$?

- (a) 0 (b) $\frac{1}{3}$ (c) $\frac{1}{9}$ (d) 1

$$a = \underline{x-y} \quad ; \quad b = \underline{y-z} \quad ; \quad c = \underline{z-x}$$

$$\frac{a^3 + b^3 + c^3}{9abc} = \frac{3abc}{9abc}$$

$$= \underline{\underline{\frac{1}{3}}}$$

$$a^3 + b^3 + c^3 = \underline{3abc}$$

$$\text{if } a+b+c = 0$$

$$x-y + y-z + z-x = 0$$

$$a^3 + b^3 + c^3 - 3abc = (a+b+c)(a^2 + b^2 + c^2 - ab - bc - ca)$$

Q) What is the value of $\frac{(x - y)^3 + (y - z)^3 + (z - x)^3}{9(x - y)(y - z)(z - x)}$?

- (a) 0 (b) $\frac{1}{3}$ (c) $\frac{1}{9}$ (d) 1

Ans: (b)

Q) If the polynomials $f(x) = x^4 - 2x^3 + 3x^2 - ax + b$ is divided by $(x - 1)$ and $(x + 1)$, the remainders are respectively 5 and 19. The values of a and b are:

- (a) $a = 8, b = 7$ (b) $a = 5, b = 8$
 (c) $a = 8, b = 5$ (d) $a = 6, b = 8$

$$f(x) = x^4 - 2x^3 + 3x^2 - ax + b$$

$$f(1) = 1^4 - 2(1)^3 + 3(1)^2 - a(1) + b = 5$$

$$\left(\begin{array}{l} x - 1 = 0 \\ x = 1 \end{array} \right. \quad \left. \begin{array}{l} 1 - 2 + 3 - a + b = 5 \\ b - a = 3 \quad \text{--- (1)} \end{array} \right.$$

$$f(-1) = 19$$

$$(-1)^4 - 2(-1)^3 + 3(-1)^2 - a(-1) + b = 19$$

$$\left. \begin{array}{l} 1 + 2 + 3 + a + b = 19 \\ a + b = 13 \quad \text{--- (2)} \end{array} \right\}$$

$$(1) + (2) \Rightarrow \underline{b = 8}; \quad (1) - (2) \Rightarrow \underline{a = 5}$$

* If $p(x)$ is divided by $(x-a)$, remainder = $p(a)$.

* If remainder, $p(a) = 0$, then $(x-a)$ is a factor of $p(x)$.

Q) If the polynomial $f(x) = x^4 - 2x^3 + 3x^2 - ax + b$ is divided by $(x - 1)$ and $(x + 1)$, the remainders are respectively 5 and 19. The values of a and b are:

- (a) $a = 8, b = 7$ (b) $a = 5, b = 8$
(c) $a = 8, b = 5$ (d) $a = 6, b = 8$

Ans: (b)

Q) For what value of a and b, $(x^3 - 10x^2 + ax + b)$ is exactly divisible by $(x - 1)$ and $(x - 2)$?

- (a) $a = 23, b = -14$ (b) $a = -23, b = 14$
(c) $a = 21, b = -14$ (d) $a = -21, b = 15$

HW

$$p(x) = x^3 - 10x^2 + ax + b$$

$$p(1) = 0$$

$$p(2) = 0$$

Q) For what value of a and b , $(x^3 - 10x^2 + ax + b)$ is exactly divisible by $(x - 1)$ and $(x - 2)$?

- (a) $a = 23, b = -14$ (b) $a = -23, b = 14$
(c) $a = 21, b = -14$ (d) $a = -21, b = 15$

Ans: (a)

Q) If $\frac{p}{x} + \frac{q}{y} = m$ and $\frac{q}{x} + \frac{p}{y} = n$, then what is $\frac{x}{y}$ equal to?

(a) $\frac{np + mq}{mp + nq}$

(b) $\frac{np + mq}{mp - nq}$

(c) $\frac{np - mq}{mp - nq}$

(d) $\frac{np - mq}{mp + nq}$

Q) If $\frac{p}{x} + \frac{q}{y} = m$ and $\frac{q}{x} + \frac{p}{y} = n$, then what is $\frac{x}{y}$ equal to?

(a) $\frac{np + mq}{mp + nq}$

(b) $\frac{np + mq}{mp - nq}$

(c) $\frac{np - mq}{mp - nq}$

(d) $\frac{np - mq}{mp + nq}$

Ans: (c)

Q) If $a^2 = b + c$, $b^2 = c + a$, $c^2 = a + b$, then the value of

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

- (a) abc (b) $a^2 b^2 c^2$ (c) 1 (d) 0

Q) If $a^2 = b + c$, $b^2 = c + a$, $c^2 = a + b$, then the value of

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

- (a) abc (b) $a^2 b^2 c^2$ (c) 1 (d) 0

Ans: (c)

Q) If $a^2 - by - cz = 0$, $ax - b^2 + cz = 0$ and $ax + by - c^2 = 0$, then

the value of $\frac{x}{a+x} + \frac{y}{b+y} + \frac{z}{c+z}$ will be

- | | |
|-----------------|-------|
| (a) $a + b + c$ | (b) 3 |
| (c) 1 | (d) 0 |

Q) If $a^2 - by - cz = 0$, $ax - b^2 + cz = 0$ and $ax + by - c^2 = 0$, then

the value of $\frac{x}{a+x} + \frac{y}{b+y} + \frac{z}{c+z}$ will be

- | | |
|-----------------|-------|
| (a) $a + b + c$ | (b) 3 |
| (c) 1 | (d) 0 |

Ans: (c)

Q) If $x = 2 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2 + \dots}}}$ then the value of x is

- (a) $\sqrt{2} - 1$ (b) $\sqrt{2} + 1$ (c) 3 (d) None

Q) If $x = 2 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2 + \dots}}}$ then the value of x is

- (a) $\sqrt{2} - 1$ (b) $\sqrt{2} + 1$ (c) 3 (d) None

Ans: (b)

Q) What is the square root of $23 - 4\sqrt{15}$?

- (a) $\sqrt{6} - 3\sqrt{2}$
- (b) $7 - 3\sqrt{5}$
- (c) $\sqrt{3} - 2\sqrt{5}$
- (d) $\sqrt{5} - 4\sqrt{3}$

Q) What is the square root of $23 - 4\sqrt{15}$?

- (a) $\sqrt{6} - 3\sqrt{2}$
- (b) $7 - 3\sqrt{5}$
- (c) $\sqrt{3} - 2\sqrt{5}$
- (d) $\sqrt{5} - 4\sqrt{3}$

Ans: (c)

Q) For which values of k , does the equation $x^2 - kx + 2 = 0$ have real and distinct solutions ?

- (a) $-2\sqrt{2} < k < 2\sqrt{2}$
- (b) $k < -2\sqrt{2}$ only
- (c) $k > 2\sqrt{2}$ only
- (d) $k < -2\sqrt{2}$ or $k > 2\sqrt{2}$

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- (b) $k < -2\sqrt{2}$ only
- (c) $k > 2\sqrt{2}$ only
- (d) $k < -2\sqrt{2}$ or $k > 2\sqrt{2}$

Ans: (d)

Q) If $96 - 64a^3 + \frac{8}{a^6} - \frac{48}{a^3} - t^3 = 0$,
then what is $a^2t + 4a^3$ equal to?

(a) 0

(b) 1

(c) 2

(d) 3

Q) If $96 - 64a^3 + \frac{8}{a^6} - \frac{48}{a^3} - t^3 = 0$,

then what is $a^2t + 4a^3$ equal to?

(a) 0

(b) 1

(c) 2

(d) 3

Ans: (c)

Q) If $a + b + c = 3$, $a^2 + b^2 + c^2 = 6$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$, where a , b , c are all non-zero, then 'abc' is equal to

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

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

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

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

Q) If $a + b + c = 3$, $a^2 + b^2 + c^2 = 6$ and $\frac{1}{a} + \frac{1}{b} + \frac{1}{c} = 1$, where a , b , c are all non-zero, then 'abc' is equal to

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

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

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

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

Ans: (b)

Q) If $m + \frac{1}{m-2} = 4$ then, what is value of

$$(m-2)^2 + \frac{1}{(m-2)^2} = ?$$

- (a) -2 (b) 0 (c) 2 (d) 4

Q) If $m + \frac{1}{m-2} = 4$ then, what is value of

$$(m-2)^2 + \frac{1}{(m-2)^2} = ?$$

- (a) -2 (b) 0 (c) 2 (d) 4

Ans: (c)

Q) What is the value of

$$\frac{1.001 \times 1.001 \times 1.001 + 0.999 \times 0.999 \times 0.999}{1.001 \times 1.001 - 1.001 \times 0.999 + 0.999 \times 0.999} ?$$

- (a) 1
(c) 3

- (b) 2
(d) 4

Q) What is the value of

$$\frac{1.001 \times 1.001 \times 1.001 + 0.999 \times 0.999 \times 0.999}{1.001 \times 1.001 - 1.001 \times 0.999 + 0.999 \times 0.999} ?$$

- (a) 1
(c) 3

- (b) 2
(d) 4

Ans: (b)

Q) If $x^2 + y^2 - 4x + 4y + 8 = 0$, then the value of $x - y$ is

(a) 4

(b) -4

(c) 0

(d) 8

Q) If $x^2 + y^2 - 4x + 4y + 8 = 0$, then the value of $x - y$ is

(a) 4

(b) -4

(c) 0

(d) 8

Ans: (a)

Q) What is the simplified form of

$$\left(\frac{x^2 - 3x + 2}{x^3 - 8} \right) \div \left(\frac{x^2 - 9}{x^2 + 7x + 12} \right) \times \left(\frac{x^3 + 2x^2 + 4x}{x^2 + 3x - 4} \right)?$$

(a) $\frac{x}{x-3}$

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

(c) $\frac{x}{x+3}$

(d) $\frac{x+3}{x+4}$

Q) What is the simplified form of

$$\left(\frac{x^2 - 3x + 2}{x^3 - 8} \right) \div \left(\frac{x^2 - 9}{x^2 + 7x + 12} \right) \times \left(\frac{x^3 + 2x^2 + 4x}{x^2 + 3x - 4} \right)?$$

(a) $\frac{x}{x-3}$

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

(c) $\frac{x}{x+3}$

(d) $\frac{x+3}{x+4}$

Ans: (a)

Q) If $a = 3 + 2\sqrt{2}$, then the value of $\frac{a^6 + a^4 + a^2 + 1}{a^3}$ is

- (a) 192 (b) 240 (c) 204 (d) 212

Q) If $a = 3 + 2\sqrt{2}$, then the value of $\frac{a^6 + a^4 + a^2 + 1}{a^3}$ is

- (a) 192 (b) 240 (c) 204 (d) 212

Ans: (c)

Q) If $p = \frac{5}{18}$

then $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$ is equal to

(a) $\frac{4}{27}$

(b) $\frac{5}{27}$

(c) $\frac{8}{27}$

(d) $\frac{10}{27}$

Q) If $p = \frac{5}{18}$

then $27p^3 - \frac{1}{216} - \frac{9}{2}p^2 + \frac{1}{4}p$ is equal to

(a) $\frac{4}{27}$

(b) $\frac{5}{27}$

(c) $\frac{8}{27}$

(d) $\frac{10}{27}$

Ans: (c)

Q) If $x = 3 + 2\sqrt{2}$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is

(a) 1

(b) 2

(c) $2\sqrt{2}$

(d) $3\sqrt{3}$

Q) If $x = 3 + 2\sqrt{2}$, then the value of $\left(\sqrt{x} - \frac{1}{\sqrt{x}}\right)$ is

(a) 1

(b) 2

(c) $2\sqrt{2}$

(d) $3\sqrt{3}$

Ans: (b)

Q) In solving a problem, one student makes a mistake in the coefficient of the first degree term and obtains -9 and -1 for the roots. Another student makes a mistake in the constant term of the equation and obtains 8 and 2 for the roots. The correct equation was

- (a) $x^2 + 10x + 9 = 0$ (b) $x^2 - 10x + 16 = 0$
(c) $x^2 - 10x + 9 = 0$ (d) None of these

Q) In solving a problem, one student makes a mistake in the coefficient of the first degree term and obtains -9 and -1 for the roots. Another student makes a mistake in the constant term of the equation and obtains 8 and 2 for the roots. The correct equation was

- (a) $x^2 + 10x + 9 = 0$ (b) $x^2 - 10x + 16 = 0$
(c) $x^2 - 10x + 9 = 0$ (d) None of these

Ans: (c)

Q) For what value of k , will the roots of the equation $kx^2 - 5x + 6 = 0$ be in the ratio of $2 : 3$?

(a) 0

(b) 1

(c) -1

(d) 2

Q) For what value of k , will the roots of the equation $kx^2 - 5x + 6 = 0$ be in the ratio of 2 : 3?

(a) 0

(b) 1

(c) -1

(d) 2

Ans: (b)

Q) $\frac{a}{1-a} + \frac{b}{1-b} + \frac{c}{1-c} = 1$, then find the value of

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

(a) 1

(b) 2

(c) 3

(d) 4

Q) $\frac{a}{1-a} + \frac{b}{1-b} + \frac{c}{1-c} = 1$, then find the value of

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

(a) 1

(b) 2

(c) 3

(d) 4

Ans: (d)

Q) If $x = b + c - 2a$, $y = c + a - 2b$, $z = a + b - 2c$, then the value of $x^2 + y^2 - z^2 + 2xy$ is

(a) 0

(b) $a + b + c$

(c) $a - b + c$

(d) $a + b - c$

Q) If $x = b + c - 2a$, $y = c + a - 2b$, $z = a + b - 2c$, then the value of $x^2 + y^2 - z^2 + 2xy$ is

(a) 0

(b) $a + b + c$

(c) $a - b + c$

(d) $a + b - c$

Ans: (a)

Q) If $a + b + c = 8$, then the value of

$$(a - 4)^3 + (b - 3)^3 + (c - 1)^3 - 3(a - 4)(b - 3)(c - 1) \text{ is}$$

(a) 2

(b) 4

(c) 1

(d) 0

Q) If $a + b + c = 8$, then the value of

$$(a - 4)^3 + (b - 3)^3 + (c - 1)^3 - 3(a - 4)(b - 3)(c - 1) \text{ is}$$

(a) 2

(b) 4

(c) 1

(d) 0

Ans: (d)

Q) If $a = \sqrt{6} + \sqrt{5}$ $b = \sqrt{6} - \sqrt{5}$ then $2a^2 - 5ab + 2b^2 =$

(a) 38

(b) 39

(c) 40

(d) 41

Q) If $a = \sqrt{6} + \sqrt{5}$ $b = \sqrt{6} - \sqrt{5}$ then $2a^2 - 5ab + 2b^2 =$

(a) 38

(b) 39

(c) 40

(d) 41

Ans: (b)

Q) If $x + \frac{4}{x} = 4$, find the value of $x^3 + \frac{4}{x^3}$.

(a) 8

(b) $8\frac{1}{2}$

(c) 16

(d) $16\frac{1}{2}$

Q) If $x + \frac{4}{x} = 4$, find the value of $x^3 + \frac{4}{x^3}$.

(a) 8

(b) $8\frac{1}{2}$

(c) 16

(d) $16\frac{1}{2}$

Ans: (b)

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