

CDS 2 2024

LIVE

MATHS

REVISION

CLASS 10



NAVJYOTI SIR



20 August 2024 Live Classes Schedule

8:00AM	20 AUGUST 2024 DAILY CURRENT AFFAIRS	RUBY MA'AM
9:00AM	20 AUGUST 2024 DAILY DEFENCE UPDATES	DIVYANSHU SIR

SSB INTERVIEW LIVE CLASSES

9:00AM	COMPLETE SCREENING TEST	ANURADHA MA'AM
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NDA 2 2024 LIVE CLASSES

11:00AM	GK - ECONOMICS REVISION - CLASS 1	RUBY MA'AM
1:00PM	MATHS REVISION - CLASS 10	NAVJYOTI SIR
2:00PM	CHEMISTRY REVISION - CLASS 3	SHIVANGI MA'AM
5:30PM	ENGLISH - REVISION - CLASS 6	ANURADHA MA'AM

CDS 2 2024 LIVE CLASSES

11:00AM	GK - ECONOMICS REVISION - CLASS 1	RUBY MA'AM
2:00PM	CHEMISTRY REVISION - CLASS 3	SHIVANGI MA'AM
3:00PM	MATHS REVISION - CLASS 10	NAVJYOTI SIR
5:30PM	ENGLISH - REVISION - CLASS 6	ANURADHA MA'AM



REVISION TOPICS :

- **Number System**
- **Algebra**

Q) Consider the following statements in respect of three 3-digit numbers XYZ , YZX and ZXY :

1. The sum of the numbers is not divisible by $(X + Y + Z)$. ✗
2. The sum of the numbers is divisible by 111. ✓

$$\begin{aligned} \overbrace{423} &= 400 + 20 + 3 \\ &= 4 \times 100 + 2 \times 10 + 3 \end{aligned}$$

Which of the above statements is/are correct?

- (a) 1 only ~~(b) 2 only~~
 (c) Both 1 and 2 (d) Neither 1 nor 2

$$\left. \begin{aligned} \underline{XYZ} &= \underline{100X} + \underline{10Y} + \underline{Z} \\ \underline{YZX} &= \underline{100Y} + \underline{10Z} + \underline{X} \\ \underline{ZXY} &= \underline{100Z} + \underline{10X} + \underline{Y} \end{aligned} \right\} \begin{aligned} \text{sum} &= (X + Y + Z)(100 + 10 + 1) \\ &= \underline{(X + Y + Z)} \underline{(111)} \end{aligned}$$

factors

Q) Consider the following statements in respect of three 3-digit numbers XYZ , YZX and ZXY :

1. The sum of the numbers is not divisible by $(X + Y + Z)$.
2. The sum of the numbers is divisible by 111.

Which of the above statements is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Ans: (b)

Q) The least number that should be added to 2055 so that the sum is exactly divisible by 27 :

- (a) 24 (b) 27 (c) 31 (d) 28

$$\begin{array}{r} 76 \\ 27 \overline{) 2055} \\ \underline{-189} \\ 165 \\ \underline{-162} \\ 3 \end{array}$$

$$-3 + 27 = 24$$

Subtract remainder ; add divisor
(number that needs to be added)

Q) The least number that should be added to 2055 so that the sum is exactly divisible by 27 :

- (a) 24 (b) 27 (c) 31 (d) 28

Ans: (a)

Q) Let x be the least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case but when divided by 9 leaves no remainder. The sum of digits of x is

- (a) 22 (b) 21 (c) 18 (d) 24

$$\left[\text{LCM}(5, 6, 7, 8) \right] k + 3$$

$$8 \times 7 \times 3 \times 5$$

$(840k + 3)$ is exactly divisible by 9.

$k=1 \rightarrow 843 \rightarrow 8+4+3=15$ — not divisible by 9.

$k=2 \rightarrow \boxed{1683} \rightarrow \underline{1+6+8+3=18}$ — divisible by 9.

$$\begin{array}{r} 56 \\ \times 15 \\ \hline 840 \end{array}$$

Q) Let x be the least number, which when divided by 5, 6, 7 and 8 leaves a remainder 3 in each case but when divided by 9 leaves no remainder. The sum of digits of x is

- (a) 22 (b) 21 (c) 18 (d) 24

Ans: (c)

Q) I have a certain number of beads which lie between 600 and 900. If 2 beads are taken away the remainder can be equally divided among 3, 4, 5, 6, 7 or 12 boys. The number of beads I have

- (a) 729 (b) 842 (c) 576 (d) 961

$$\text{LCM}(3, 4, 5, 6, 7, 12)k + 2$$

$$\left[\frac{3 \times 4 \times 5 \times 7}{420} \right]$$

$$(420k + 2)$$

$$\text{At } k=1 \quad \text{--- } 422 \quad \alpha$$

$$\text{At } k=2 \quad \text{--- } 840 + 2 = \boxed{842}$$

$$600 - 900$$



Q) I have a certain number of beads which lie between 600 and 900. If 2 beads are taken away the remainder can be equally divided among 3, 4, 5, 6, 7 or 12 boys. The number of beads I have

- (a) 729 (b) 842 (c) 576 (d) 961

Ans: (b)

Q) A hall is 13 metres 53 cm long and 8 metres 61 cm broad is to be paved with minimum number of square tiles. The number of tiles required is:

- (a) 123 (b) 77 (c) 99 (d) 57

$$\text{side of square tile} = \text{HCF}(1353 \text{ cm}, 861 \text{ cm}) = \underline{123 \text{ cm}}$$

$$\begin{array}{r} 861 \overline{) 1353} \quad (1) \\ \underline{- 861} \\ 492 \end{array}$$

$$\begin{array}{r} 492 \overline{) 861} \quad (1) \\ \underline{- 492} \\ 369 \end{array}$$

$$\begin{array}{r} 369 \overline{) 492} \quad (1) \\ \underline{- 369} \\ 123 \end{array}$$

$$\begin{array}{r} 123 \overline{) 369} \quad (3) \\ \underline{- 369} \\ 00 \end{array}$$

$$\begin{array}{l} \text{no. of square tiles} \\ \hline = \frac{1353 \times 861}{123 \times 123} = 77 \end{array}$$

Q) A hall is 13 metres 53 cm long and 8 metres 61 cm broad is to be paved with minimum number of square tiles. The number of tiles required is:

- (a) 123 (b) 77 (c) 99 (d) 57

Ans: (b)

Q) Three wheels can complete respectively 60, 36, 24 revolutions per minute. There is a red spot on each wheel that touches the ground at time zero. After how much time, all these spots will simultaneously touch the ground again?

- (a) $\frac{5}{2}$ seconds (b) $\frac{5}{3}$ seconds
 ✓ (c) 5 seconds (d) 7.5 seconds

$$60 \text{ rev} \text{ --- } 60 \text{ s} \longrightarrow \text{Time for 1 rev} \text{ --- } 1 \text{ s}$$

$$36 \text{ rev} \text{ --- } 60 \text{ s} \longrightarrow \text{ " " " --- } \frac{60}{36} \text{ s} = \frac{5}{3} \text{ s}$$

$$24 \text{ rev} \text{ --- } 60 \text{ s} \longrightarrow \text{ " " " --- } \frac{60}{24} \text{ s} = \frac{5}{2} \text{ s}$$

$$\text{LCM} \left(1 \text{ s}, \frac{5}{3} \text{ s}, \frac{5}{2} \text{ s} \right) = \underline{5 \text{ s}}$$

- Q)** Three wheels can complete respectively 60,36,24 revolutions per minute. There is a red spot on each wheel that touches the ground at time zero. After how much time, all these spots will simultaneously touch the ground again?
- (a) $5/2$ seconds (b) $5/3$ seconds
(c) 5 seconds (d) 7.5 seconds

Ans: (c)

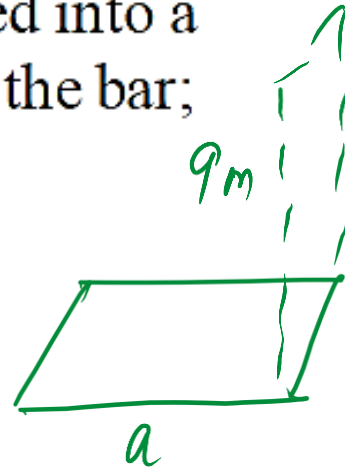
Q) A cubic metre of copper weighing 9000 kg is rolled into a square bar 9 m long. An exact cube is cut off from the bar; How much does the cube weigh ?

(a) 1000 kg

(b) $\frac{1000}{3}$ kg

(c) 300 kg

(d) $\frac{500}{3}$ kg



$$a^2 \times 9 = 1$$

$$a^2 = \frac{1}{9} \Rightarrow a = \frac{1}{3}$$

$$\underline{1 \text{ m}^3} \text{ ————— } 9000 \text{ kg}$$

$$a^3 = \left(\frac{1}{3}\right)^3 = \frac{1}{27} \text{ m}^3$$

weight of cube = $\frac{1}{27} \times \frac{9000}{3} = \underline{\underline{\frac{1000}{3} \text{ kg}}}$

Q) A cubic metre of copper weighing 9000 kg is rolled into a square bar 9 m long. An exact cube is cut off from the bar; How much does the cube weigh ?

- (a) 1000 kg (b) $\frac{1000}{3}$ kg
- (c) 300 kg (d) $\frac{500}{3}$ kg

Ans: (b)

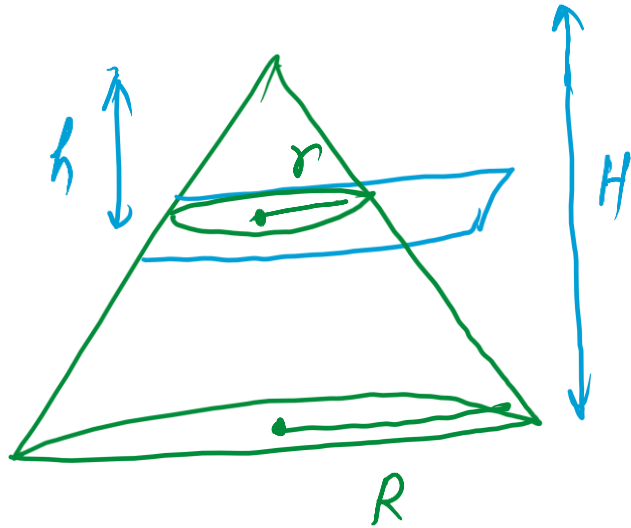
Q) A plane divides a right circular cone into two parts of equal volume. If the plane is parallel to the base, then the ratio, in which the height of the cone is divided, is

(a) $1 : \sqrt[3]{2}$

(b) $1 : \sqrt{2}$

(c) $1 : \sqrt[3]{2} - 1$

(d) $1 : \sqrt[3]{2} + 1$



$$\frac{1}{3} \pi r^2 h = \frac{1}{3} \pi R^2 H - \frac{1}{3} \pi r^2 h$$

$$2 r^2 h = R^2 H$$

$$2 \left(\frac{r}{R} \right)^2 = \frac{H}{h} \Rightarrow 2 \left(\frac{h}{H} \right)^2 = \frac{H}{h}$$

$$\frac{h}{H-h} = \frac{k}{\sqrt[3]{2}k - k} = \frac{1}{\sqrt[3]{2} - 1}$$

$$\frac{r}{R} = \frac{h}{H}$$

$$2 = \left(\frac{H}{h} \right)^3$$

$$\frac{H}{h} = \frac{(2)^{1/3}}{1}$$

$$\frac{h}{H} = \frac{1}{\sqrt[3]{2}}$$

Q) A plane divides a right circular cone into two parts of equal volume. If the plane is parallel to the base, then the ratio, in which the height of the cone is divided, is

(a) $1 : \sqrt[3]{2}$

(b) $1 : \sqrt{2}$

(c) $1 : \sqrt[3]{2} - 1$

(d) $1 : \sqrt[3]{2} + 1$

Ans: (c)

Q) What is the remainder after dividing the number 37^{1000} by 9?

- (a) 1 (b) 3
(c) 7 (d) 9

$$\text{Rem} \left[\frac{(36+1)^{1000}}{9} \right] = \text{Rem} \left[\frac{1^{1000}}{9} \right] = \text{Rem} \left[\frac{1}{9} \right] = \textcircled{1}$$

Q) What is the remainder after dividing the number 37^{1000} by 9?

- (a) 1 (b) 3
(c) 7 (d) 9

Ans: (a)

Q) What is the remainder when $27^{27} - 15^{27}$ is divided by 6?

(a) 0

(b) 1

(c) 3

(d) 4

$a^n - b^n$ is always divisible by $(a - b)$.

$$27^{27} - 15^{27} \Rightarrow (27 - 15) = 12$$

If divisible by 12, then also divisible by factors of 12.

(1, 2, 3, 4, 6, 12)

So, remainder = 0.

Q) What is the remainder when $27^{27} - 15^{27}$ is divided by 6?

(a) 0

(b) 1

(c) 3

(d) 4

Ans: (a)

Q) What is the maximum value of m , if the number $N = 90 \times 42 \times 324 \times 55$ is divisible by 3^m ?

(a) 8

(b) 7

(c) 6

(d) 5

Q) What is the maximum value of m , if the number $N = 90 \times 42 \times 324 \times 55$ is divisible by 3^m ?

(a) 8

(b) 7

(c) 6

(d) 5

Ans: (b)

Q) The digit in the unit's place of the number represented by $(7^{95} - 3^{58})$ is:

(a) 0

(b) 4

(c) 6

(d) 7

Q) The digit in the unit's place of the number represented by $(7^{95} - 3^{58})$ is:

(a) 0

(b) 4

(c) 6

(d) 7

Ans: (b)

Q) The sum of $5^2 + 6^2 + 7^2 + \dots + 15^2$ is

(a) 1110

(b) 1120

(c) 1310

(d) 1210

- Q) The sum of $5^2 + 6^2 + 7^2 + \dots + 15^2$ is
- | | |
|----------|----------|
| (a) 1110 | (b) 1120 |
| (c) 1310 | (d) 1210 |

Ans: (d)

Q) If $x959y$ is divisible by 44 and $y > 5$, then what are values of the digit x and y ?

(a) $x = 7, y = 6$

(b) $x = 4, y = 8$

(c) $x = 6, y = 7$

(d) None of these

Q) If $x959y$ is divisible by 44 and $y > 5$, then what are values of the digit x and y ?

(a) $x = 7, y = 6$

(b) $x = 4, y = 8$

(c) $x = 6, y = 7$

(d) None of these

Ans: (a)

Q) If the number $413283P759387$ is divisible by 13, then what is the value of P ?

(a) 3

(b) 6

(c) 7

(d) 8

Q) If the number 413283P759387 is divisible by 13, then what is the value of P ?

- (a) 3 (b) 6 (c) 7 (d) 8

Ans: (d)

Q) The number of prime factors in the expression

$(6)^{10} \times (7)^{17} \times (11)^{27}$ is:

- (a) 54 (b) 64 (c) 71 (d) 81

Q) The number of prime factors in the expression

$(6)^{10} \times (7)^{17} \times (11)^{27}$ is:

- (a) 54 (b) 64 (c) 71 (d) 81

Ans: (b)

Q) The seven digit number $876p37q$ is divisible by 225. The values of p and q can be respectively

(a) 9, 0

(b) 0, 0

(c) 0, 5

(d) 9, 5

Q) The seven digit number $876p37q$ is divisible by 225. The values of p and q can be respectively

(a) 9, 0

(b) 0, 0

(c) 0, 5

(d) 9, 5

Ans: (d)

Q) The sum of three fractions is $2\frac{11}{24}$. When the largest fraction is divided by the smallest, the fraction thus obtained is $\frac{7}{6}$ which is $\frac{1}{3}$ more than the middle one. The fractions are:

(a) $\frac{3}{5}, \frac{4}{7}, \frac{2}{3}$

(b) $\frac{7}{8}, \frac{5}{6}, \frac{3}{4}$

(c) $\frac{7}{9}, \frac{2}{3}, \frac{3}{5}$

(d) None of these

Q) The sum of three fractions is $2\frac{11}{24}$. When the largest fraction is divided by the smallest, the fraction thus obtained is $\frac{7}{6}$ which is $\frac{1}{3}$ more than the middle one. The fractions are:

(a) $\frac{3}{5}, \frac{4}{7}, \frac{2}{3}$

(b) $\frac{7}{8}, \frac{5}{6}, \frac{3}{4}$

(c) $\frac{7}{9}, \frac{2}{3}, \frac{3}{5}$

(d) None of these

Ans: (b)

Q) If the sum of two numbers is 55 and the H.C.F. and L.C.M. of these numbers are 5 and 120 respectively, then the sum of the reciprocals of the numbers is equal to:

- (a) $\frac{55}{601}$ (b) $\frac{601}{55}$ (c) $\frac{11}{120}$ (d) $\frac{120}{11}$

Q) If the sum of two numbers is 55 and the H.C.F. and L.C.M. of these numbers are 5 and 120 respectively, then the sum of the reciprocals of the numbers is equal to:

- (a) $\frac{55}{601}$ (b) $\frac{601}{55}$ (c) $\frac{11}{120}$ (d) $\frac{120}{11}$

Ans: (c)

Q) If the points P and Q represent real numbers $0.7\bar{3}$ and $0.5\bar{6}$ on the number line, then what is the distance between P and Q ?

- (a) $\frac{1}{6}$ (b) $\frac{1}{5}$ (c) $\frac{16}{45}$ (d) $\frac{11}{90}$

Q) If the points P and Q represent real numbers $0.7\bar{3}$ and $0.5\bar{6}$ on the number line, then what is the distance between P and Q ?

- (a) $\frac{1}{6}$ (b) $\frac{1}{5}$ (c) $\frac{16}{45}$ (d) $\frac{11}{90}$

Ans: (a)

Q) Minimum difference between x and y such that $1x71y61$ is exactly divisible by 11 is

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

Q) Minimum difference between x and y such that $1x71y61$ is exactly divisible by 11 is

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

Ans: (a)

Q) The value of

$$\frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{3 - \sqrt{8}} \text{ is}$$

(a) 0 (b) 1 (c) 5 (d) 7

Q) The value of

$$\frac{1}{\sqrt{7} - \sqrt{6}} - \frac{1}{\sqrt{6} - \sqrt{5}} + \frac{1}{\sqrt{5} - 2} - \frac{1}{\sqrt{8} - \sqrt{7}} + \frac{1}{3 - \sqrt{8}} \text{ is}$$

(a) 0 (b) 1 (c) 5 (d) 7

Ans: (c)

Q) What is the unit digit in the expansion of 67^{32} ?

(a) 1

(b) 3

(c) 7

(d) 9

Q) What is the unit digit in the expansion of 67^{32} ?

- (a) 1 (b) 3 (c) 7 (d) 9

Ans: (a)

Q) Three men start together to travel the same way around a circular track of 11 kms. Their speeds are 4, $5\frac{1}{2}$, and 8 kms per hour respectively. When will they meet at the starting point?

- | | |
|------------|------------|
| (a) 22 hrs | (b) 12 hrs |
| (c) 11 hrs | (d) 44 hrs |

Q) Three men start together to travel the same way around a circular track of 11 kms. Their speeds are 4, $5\frac{1}{2}$, and 8 kms per hour respectively. When will they meet at the starting point?

- | | |
|------------|------------|
| (a) 22 hrs | (b) 12 hrs |
| (c) 11 hrs | (d) 44 hrs |

Ans: (a)

Q) One pendulum ticks 57 times in 58 seconds and another 608 times in 609 seconds. If they started simultaneously, find the time after which they will tick together.

(a) $\frac{211}{19}$ s

(b) $\frac{1217}{19}$ s

(c) $\frac{1218}{19}$ s

(d) $\frac{1018}{19}$ s

Q) One pendulum ticks 57 times in 58 seconds and another 608 times in 609 seconds. If they started simultaneously, find the time after which they will tick together.

(a) $\frac{211}{19}$ s

(b) $\frac{1217}{19}$ s

(c) $\frac{1218}{19}$ s

(d) $\frac{1018}{19}$ s

Ans: (c)

- Q)** The LCM of $x^3 - 1$, $x^4 + x^2 + 1$ and $x^4 - 5x^2 + 4$ is
- (a) $(x - 1)(x + 1)(x - 2)$
 - (b) $(x - 1)(x + 1)(x + 2)$
 - (c) $(x^2 - 1)(x^2 - 4)$
 - (d) $(x^2 - 1)(x^2 - 4)(x^2 + x + 1)(x^2 + 1 - x)$

- Q)** The LCM of $x^3 - 1$, $x^4 + x^2 + 1$ and $x^4 - 5x^2 + 4$ is
- (a) $(x - 1)(x + 1)(x - 2)$
 - (b) $(x - 1)(x + 1)(x + 2)$
 - (c) $(x^2 - 1)(x^2 - 4)$
 - (d) $(x^2 - 1)(x^2 - 4)(x^2 + x + 1)(x^2 + 1 - x)$

Ans: (d)

Q) What is the HCF of $36(3x^4 + 5x^3 - 2x^2)$, $9(6x^3 + 4x^2 - 2x)$ and $54(27x^4 - x)$?

(a) $9x(x + 1)$

(b) $9x(3x - 1)$

(c) $18x(3x - 1)$

(d) $18x(x + 1)$

Q) What is the HCF of $36(3x^4 + 5x^3 - 2x^2)$, $9(6x^3 + 4x^2 - 2x)$ and $54(27x^4 - x)$?

(a) $9x(x + 1)$

(b) $9x(3x - 1)$

(c) $18x(3x - 1)$

(d) $18x(x + 1)$

Ans: (c)

Q) What is the HCF of the polynomials $x^3 + 8$, $x^2 + 5x + 6$
and $x^3 + 2x^2 + 4x + 8$?

(a) $x + 2$

(b) $x + 3$

(c) $(x + 2)^2$

(d) None of these

Q) What is the HCF of the polynomials $x^3 + 8$, $x^2 + 5x + 6$ and $x^3 + 2x^2 + 4x + 8$?

(a) $x + 2$

(b) $x + 3$

(c) $(x + 2)^2$

(d) None of these

Ans: (a)

Q) If $a + b + c = 0$, find the value of $\frac{a+b}{c} - \frac{2b}{c+a} + \frac{b+c}{a}$

(a) 0

(b) 1

(c) -1

(d) 2

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

$$-1 + 2 - 1 = \underline{0}$$

Q) If $a + b + c = 0$, find the value of $\frac{a+b}{c} - \frac{2b}{c+a} + \frac{b+c}{a}$

(a) 0

(b) 1

(c) -1

(d) 2

Ans: (a)

Q) If $x^3 + y^3 + z^3 = 3(1 + xyz)$, $P = y + z - x$, $Q = z + x - y$ and $R = x + y - z$, then what is the value of $P^3 + Q^3 + R^3 - 3PQR$?

(a) 9 (b) 8 (c) 12 (d) 6

$$\underline{x^3 + y^3 + z^3 - 3xyz = 3}$$

$$\underline{(x+y+z)(x^2+y^2+z^2-xy-yz-zx) = 3}$$

$$P+Q+R = \cancel{y+z-x} + \cancel{z+x-y} + \cancel{x+y-z} = \underline{x+y+z}$$

$$P^3 + Q^3 + R^3 - 3PQR = \underline{(P+Q+R)} (P^2 + Q^2 + R^2 - PQ - QR - RP)$$

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

$$\begin{aligned}
 x^3 + y^3 + z^3 - 3xyz &= (x+y+z)(x^2+y^2+z^2 - xy - yz - zx) = 3 \\
 &= (x+y+z) \frac{1}{2} (2x^2 + 2y^2 + 2z^2 - 2xy - 2yz - 2zx) = 3 \\
 &= \frac{1}{2} (x+y+z) \left[(x-y)^2 + (y-z)^2 + (z-x)^2 \right] = 3 \\
 &= \underbrace{(x+y+z)}_{=6} \underbrace{\left[(x-y)^2 + (y-z)^2 + (z-x)^2 \right]}_{=1} = 6
 \end{aligned}$$

$x = 1$
 $y =$
 $z =$

- Q) If $x^3 + y^3 + z^3 = 3(1 + xyz)$, $P = y + z - x$, $Q = z + x - y$ and $R = x + y - z$, then what is the value of $P^3 + Q^3 + R^3 - 3PQR$?
- (a) 9 (b) 8 (c) 12 (d) 6

Ans: (c)

Q) Which one is one of the factors of

$$x^2 + \frac{1}{x^2} + 8\left(x + \frac{1}{x}\right) + 14?$$

$$\left(x + \frac{1}{x}\right)^2 + 8\left(x + \frac{1}{x}\right) - 2 + 14$$

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

(b) $\frac{x + \frac{1}{x} + 3}{x}$ $y+3$

✓ (c) $\frac{x + \frac{1}{x} + 6}{x}$ $y+6$

(d) $\frac{x + \frac{1}{x} + 7}{x}$ $y+7$

$$\left(x + \frac{1}{x}\right)^2 + 8\left(x + \frac{1}{x}\right) + 12$$

-1 -3 } substituting into $\rightarrow y^2 + 8y + 12$
 -6 -7 }

if zero, then corresponding option is the factor,

Q) Which one is one of the factors of

$$x^2 + \frac{1}{x^2} + 8\left(x + \frac{1}{x}\right) + 14 ?$$

(a) $x + \frac{1}{x} + 1$

(b) $x + \frac{1}{x} + 3$

(c) $x + \frac{1}{x} + 6$

(d) $x + \frac{1}{x} + 7$

Ans: (c)

Q) The value of k for which

$$x + 2y + 7 = 0$$

$$2x + ky + 14 = 0$$

and represent coincident lines is

(a) 3

(b) 4

(c) -4

(d) -3

Q) The value of k for which

$$x + 2y + 7 = 0$$

$$2x + ky + 14 = 0$$

and represent coincident lines is

(a) 3

(b) 4

(c) -4

(d) -3

Ans: (b)

Q) Tanya's grandfather was 8 times older to her 16 years ago. He would be 3 times of her age after 8 years from now. Eight years ago, what was the ratio of Tanya's age to that of her grandfather?

(a) 1 : 2

(b) 1 : 5

(c) 3 : 8

(d) None of these

Q) Tanya's grandfather was 8 times older to her 16 years ago. He would be 3 times of her age after 8 years from now. Eight years ago, what was the ratio of Tanya's age to that of her grandfather?

(a) 1 : 2

(b) 1 : 5

(c) 3 : 8

(d) None of these

Ans: (d)

Q) If $x + \frac{1}{x} = \sqrt{3}$, then the value of $x^{18} + x^{12} + x^6 + 1$ is

(a) 0

(b) 1

(c) 2

(d) 3

Q) If $x + \frac{1}{x} = \sqrt{3}$, then the value of $x^{18} + x^{12} + x^6 + 1$ is

(a) 0

(b) 1

(c) 2

(d) 3

Ans: (a)

Q) If $x^2 + y^2 + z^2 = xy + yx + zx$, then the value of

$$\frac{3x^4 + 7y^4 + 5z^4}{5x^2y^2 + 7y^2z^2 + 3z^2x^2} \text{ is}$$

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

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

Ans: (a)

Q) If $x^2 + y^2 + 2x + 1 = 0$, then the value of $x^{31} + y^{35}$ is

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

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Ans: (a)

Q) If $x^4 + \frac{1}{x^4} = 119$ and $x > 1$, then the value of $x^3 - \frac{1}{x^3}$ is

- (a) 54 (b) 18 (c) 72 (d) 36

Q) If $x^4 + \frac{1}{x^4} = 119$ and $x > 1$, then the value of $x^3 - \frac{1}{x^3}$ is

- (a) 54 (b) 18 (c) 72 (d) 36

Ans: (d)

Q) If $x - \frac{1}{x} = \frac{1}{3}$, then what is $9x^2 + \frac{9}{x^2}$ is equal to?

(a) 18

(b) 19

(c) 20

(d) 21

Q) If $x - \frac{1}{x} = \frac{1}{3}$, then what is $9x^2 + \frac{9}{x^2}$ is equal to?

(a) 18

(b) 19

(c) 20

(d) 21

Ans: (b)

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

(a) 1000 (b) 999 (c) 998 (d) 1002

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(a) 1000 (b) 999 (c) 998 (d) 1002

Ans: (a)

Q) If $2\sqrt{2}x^3 - 3\sqrt{3}y^3 = (\sqrt{2}x - \sqrt{3}y)(Ax^2 + By^2 + Cxy)$, then the value of $A^2 + B^2 - C^2$ is:

- (a) 11 (b) 7 (c) 19 (d) 10

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- (a) 11 (b) 7 (c) 19 (d) 10

Ans: (b)

Q) If the roots of the equation

$$(a^2 + b^2)x^2 - 2(ac + bd)x + (c^2 + d^2) = 0$$
 are equal, then

which of the following is true?

(a) $ab = cd$

(b) $ad = bc$

(c) $ad = \sqrt{bc}$

(d) $ab = \sqrt{cd}$

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(d) $ab = \sqrt{cd}$

Ans: (b)

Q) What is the value of

$$\frac{725 \times 725 \times 725 + 371 \times 371 \times 371}{725 \times 725 - 725 \times 371 + 371 \times 371} ?$$

(a) 9610

(b) 1960

(c) 1096

(d) 1016

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$$\frac{725 \times 725 \times 725 + 371 \times 371 \times 371}{725 \times 725 - 725 \times 371 + 371 \times 371} ?$$

(a) 9610

(b) 1960

(c) 1096

(d) 1016

Ans: (c)

Q) If the sum of a real number and its reciprocal is $\frac{26}{5}$, then how many such numbers are possible?

- (a) None (b) One (c) Two (d) Four

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- (a) None (b) One (c) Two (d) Four

Ans: (d)

Q) My brother is 3 years elder to me. My father was 28 years of age when my sister was born while my mother was 26 years of age when I was born. If my sister was 4 years of age when my brother was born, then, what was the age of my father and mother respectively when my brother was born?

- (a) 32 yrs, 23 yrs (b) 32 yrs, 29 yrs
(c) 35 yrs, 29 yrs (d) 35 yrs, 33 yrs

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- (a) 32 yrs, 23 yrs (b) 32 yrs, 29 yrs
(c) 35 yrs, 29 yrs (d) 35 yrs, 33 yrs

Ans: (a)

Q) Consider the following statements :

- 1 The equation $1990x - 173y = 11$ has no solution in integers for x and y .
2. The equation $3x - 12y = 7$ has no solution in integers for x and y .

Which of the above statements is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

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- 1 The equation $1990x - 173y = 11$ has no solution in integers for x and y .
2. The equation $3x - 12y = 7$ has no solution in integers for x and y .

Which of the above statements is/are correct?

- | | |
|------------------|---------------------|
| (a) 1 only | (b) 2 only |
| (c) Both 1 and 2 | (d) Neither 1 nor 2 |

Ans: (c)

Q) Ten chairs and six tables together cost ₹ 6200, three chairs and two tables together cost ₹ 1900. The cost of 4 chairs and 5 tables is

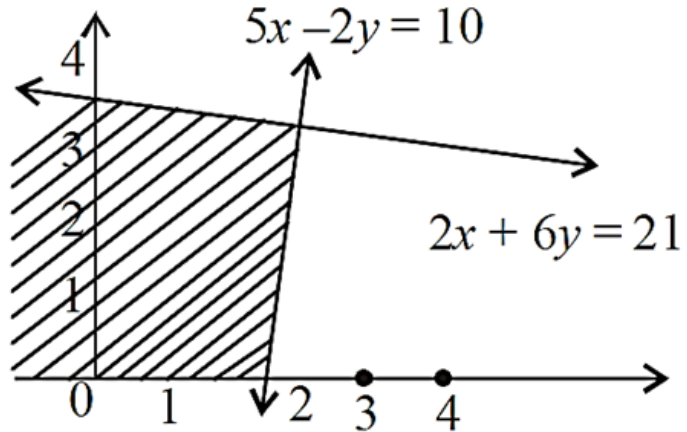
- | | |
|------------|------------|
| (a) ₹ 3000 | (b) ₹ 3300 |
| (c) ₹ 3500 | (d) ₹ 3800 |

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- | | |
|------------|------------|
| (a) ₹ 3000 | (b) ₹ 3300 |
| (c) ₹ 3500 | (d) ₹ 3800 |

Ans: (a)

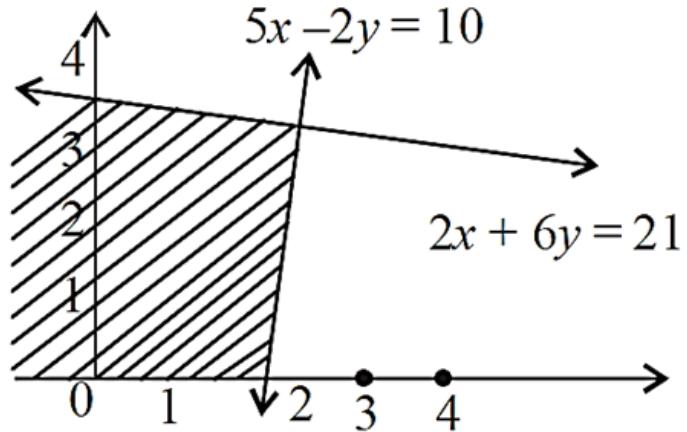
Q)



The linear inequations, for which the shaded area in the figure given above is the solution set, are

- (a) $2x + 6y \leq 21, 5x - 2y \leq 10$
- (b) $2x + 6y \leq 21, 5x - 2y \geq 10$
- (c) $2x + 6y \geq 21, 5x - 2y \leq 10$
- (d) $2x + 6y \geq 21, 5x - 2y \geq 10$

Q)



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- (d) $2x + 6y \geq 21, 5x - 2y \geq 10$

Ans: (a)

- Q)** There are three brothers. The sums of ages of two of them at a time are 4 years, 6 years and 8 years. The age difference between the eldest and the youngest is
- (a) 3 years (b) 4 years
(c) 5 years (d) 6 years

- Q)** There are three brothers. The sums of ages of two of them at a time are 4 years, 6 years and 8 years. The age difference between the eldest and the youngest is
- (a) 3 years (b) 4 years
(c) 5 years (d) 6 years

Ans: (b)

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NAVJYOTI SIR

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TOPICS :
(21/08/24)**

- **Algebra**
- **Trigonometry**