10th MATHS SAMPLE PAPER-2

Duration:- 1hr+15min. TERM-1 PULKIT JAWAL

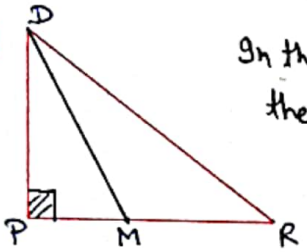
40 Questions

Q1. Match the following :-

(A) Cos 90°	(i) 1	(a) A–(iv), B–(iii), C(i), D(ii)	
(B) tan 90°	(ii) 1	(b) A–(i), B–(ii), C–(iii), D–(iv)	
(C) Sin 90°	(iii) Not defined	(c) A(iv), B–(i), C–(ii), D–(iii)	
(D) Cosec 90°	(iv) 0	(d) None of these	

Q2. The value of $[\sin^2 A]^{1.5}$ at $A = 45°$ is (a) $2^{3/2}$ (b) $\frac{1}{2^{-3/2}}$ (c) $2^{-3/2}$ (d) None

Q3.



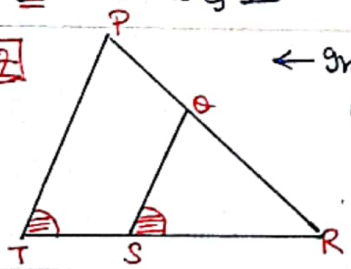
In this $\triangle DPR$, right angled at P, if DM is the median of the $\triangle$. then find $\frac{\cot \angle PDR}{\cot \angle PDM} = ??$ (a) $\frac{1}{4}$ (b) 4 (c) 2 (d) $\frac{1}{2}$

Q4. Which identity is incorrect → (a) $\cos^2\theta = 1 - \sin^2\theta$ (b) $\sec^2 A = 1 + \tan^2 A$
(c) $-1 = \cot^2\theta - \operatorname{cosec}^2\theta$ (d) $\tan^2\theta - \sec^2\theta = 1$.

Q5. The value of $\frac{\cos 30°}{\sin 30°} \div \frac{\tan 30°}{\cot 30°} \div \frac{\sec 45°}{\operatorname{cosec} 45°} = ??$ (a) $3\sqrt{3}$ (b) $\sqrt{3}$ (c) $\frac{1}{\sqrt{3}}$ (d) 0

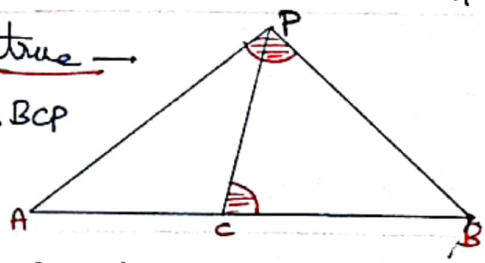
Q6. In a triangle ABC, which is right angled at 'A', if AB = 10m, BC = $10\sqrt{2}$m and CA = 10m, then this triangle is → (a) Right angled $\triangle$
(b) Isosceles $\triangle$ (c) Isosceles right angled $\triangle$ (d) Can't determine.

Q7.



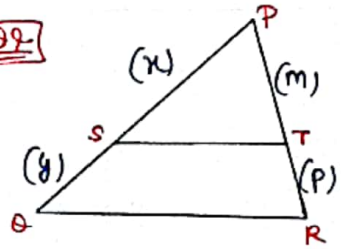
← In this figure of $\triangle PTR$, $\angle PTR = \angle QSR$, given QS = 'n' PT = 'm', RS = 'x' and ST = 'p' then which is correct.
(a) $x = \frac{n(p-m)}{m}$ (b) $x = \frac{p(n-m)}{m}$ (c) $x = \frac{p(m-n)}{m}$ (d) $x = \frac{pn}{m-n}$

Q8. In this $\triangle PAB$, given $\angle APB = \angle PCB$. then which is true →



(a) $\triangle PBA \sim \triangle CBP$ (b) $\triangle PBA \sim \triangle BPC$ (c) $\triangle BPA \sim \triangle BCP$
(d) Both (a) & (c)

Q9.



In this $\triangle PQR$ if ST is parallel to QR. then which is true.
(a) $\frac{x}{y} = \frac{m}{p}$ (b) $\frac{m}{p+m} = \frac{x}{y+x}$ (c) Both (a) & (b)
(d) $xm = py$

Q10. PQRS is a trapezium in which diagonals PR & SQ intersect each other at O. If PO = 'x' cm, OR = 'y' cm, OQ = 'n' cm, OS = 'm' cm then which relation is correct.

(a) $\frac{x}{n} = \frac{m}{y}$ (b) $\frac{x}{y} = \frac{m}{n}$ (c) $\frac{x}{y} = \frac{n}{m}$ (d) $\frac{x}{xy} = \frac{n}{m}$

Q11. In $\triangle PQR$, D is the point lies on PQ and E lies on PR. If $\angle PDE = 60°$, $\angle QPR = 50°$, DP = 6 cm, DQ = 9 cm, PR = 2 cm, ER = 12 cm. Then $\angle PRQ = ??$

(a) 50° (b) 60° (c) 70° (d) None of these

Q12. The product of the smallest Composite number and smallest prime number is

(a) 4 (b) 8 (c) 2 (d) None of these

Q13. Which one is not a irrational number → (a) 0 (b) $(6+\sqrt{6})^2$ (c) $(\sqrt{2}+3)(3+\sqrt{2})$ (d) $3\sqrt{3}$

Q14. The least number that is divisible by all natural numbers from "x, y, z, w." (both x and w are included) can be calculated by → (a) HCF (x, y, z, w) (b) HCF (y, z) (c) LCM (x, y, z, w) (d) LCM (x, y, z)

Q15 If the HCF of 2 numbers is 1, then these two numbers must be. →

(a) Irrational (b) Rational (c) Relatively prime OR Coprime (d) Whole No.

Q16. Which one is not a terminating decimal expansion.

(a) $\frac{6}{625}$ (b) $\frac{17}{64}$ (c) $\frac{59}{25}$ (d) $\frac{2}{12}$

Q17. Which statement is incorrect →

(a) 2 is the only even prime number.
(b) 4 is the smallest Composite number.
(c) Only even numbers can form a Coprime pairs.
(d) The LCM of 2 Coprime numbers is product of the numbers.

Q18. 2 dices are thrown at random, then find the probability that sum of 2 numbers appears on the top of the dice is 13. (a) $\frac{1}{6}$ (b) $\frac{2}{36}$ (c) 0 (d) 1

Q19. If four unbiased coins are tossed at random, then total no. of outcomes will be → (a) 6^4 (b) 4^6 (c) 2^4 (d) None of these

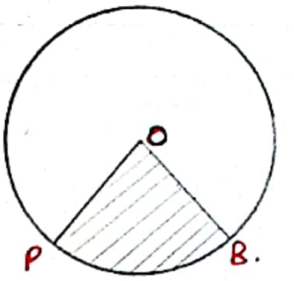
Q20. Which one of the following can never be the probability of any event (E).

(a) $\frac{1}{2}$ (b) 0.25 (c) $\frac{6}{2}$ (d) $\frac{30}{40}$

Q21. The area of circle inscribed in a Square of side 'x' cm is →

(a) $\frac{11x}{14}$ (b) $\frac{11x^2}{22}$ (c) $\frac{22}{28}x^2$ (d) None

Q22 In this circle with centre O, and diameter 28 cm, $\angle POB = 60°$, Then perimeter of shaded portion is —



(a) $\frac{84}{3}$ cm (b) $\frac{64}{3}$ cm (c) $\frac{308}{3}$ cm (d) $\frac{128}{3}$ cm

Q23 On decreasing the diameter of circle by 15% then area of circle is decreased by (a) 27.75% (b) 25.75% (c) 32.25%

Q24 A pendulum swings through an angle of 30° & describes an arc of 8.8 m in length. Then length of the pendulum is (a) 16 m (b) 16.5m (c) 16.8 m (d) None

Q25 Match the following:-

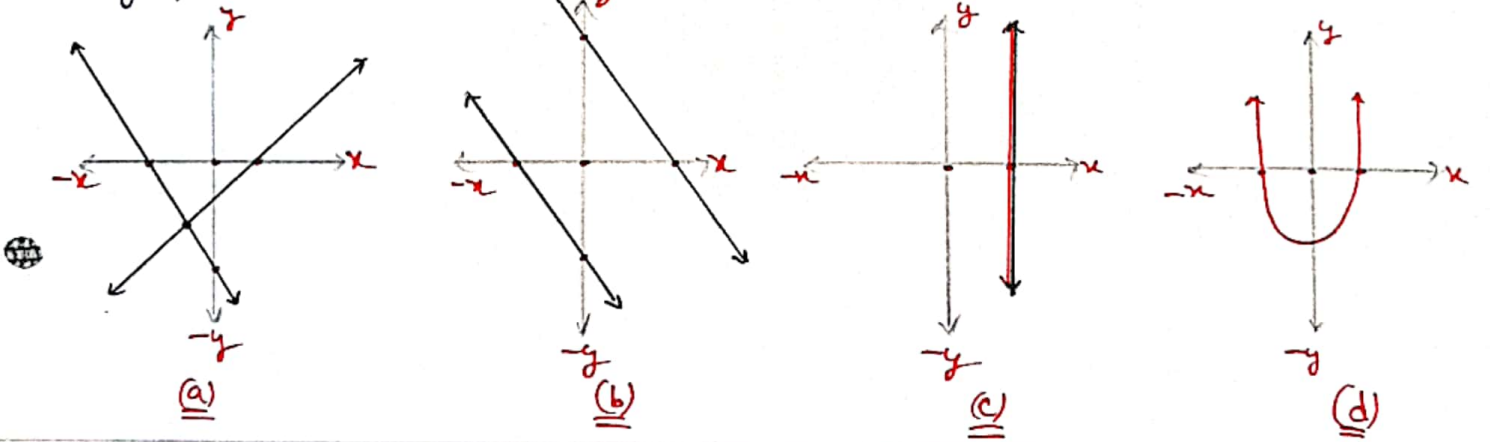
(A) Dependent Equations.	(i) $0.2x+0.3y=1.3$; $0.4x+0.5y=2.3$
(B) No solution Equations.	(ii) $y=2x+3$; $y=2x-4$
(C) Unique solution Equations	(iii) $9x+3y+12=0$; $18x+6y+24=0$

(a) A→(i), B→(ii), C→(iii)
(b) A→(iii), B→(ii), C→(i)
(c) A→(ii), B→(iii), C→(i)
(d) None

Q26 The value of $(x \div y) = ??$ for $\frac{2}{x}+\frac{3}{y}=13$ & $\frac{5}{x}-\frac{4}{y}=-2$ →

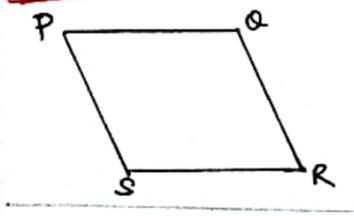
(a) $\frac{3}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{2}$ (d) Can't determine.

Q27 The pair of equations $65x+39y-104=0$ & $5x+3y-8=0$ represents which graph :-



(a) (b) (c) (d)

Q28 PQRS is a parallelogram in which PQ = 6m, QR = (2y+1) m, RS = (3x) m & SP = 9 m then value $\frac{x}{y} = ??$



(a) $\frac{4}{2}$ (b) 2 (c) $\frac{19}{38}$ (d) $\frac{38}{19}$

Q29 $37x+43y=123$, $43x+37y=117$ then x and y are →

(a) $x=2, y=1$ (b) $x=-1, y=2$ (c) $x=-2, y=1$ (d) $x=1, y=2$.

Q30 If the letters of the word MATHEMATICS are put in the box & one letter is drawn at random. The probability that the drawn letter is "M" →

(a) $\frac{2}{10}$ (b) $\frac{6}{33}$ (c) $\frac{1}{5}$ (d) None of these

Q31. If $\sqrt{a}x - \sqrt{b}y = (b-a)$ & $\sqrt{b}x = \sqrt{a}y$ then $(x \div y) = ??$

(a) $\left(\frac{b}{a}\right)^{0.5}$ (b) $\left(\frac{a}{b}\right)^{0.5}$ (c) $-\sqrt{\frac{a}{b}}$ (d) $-\sqrt{\frac{b}{a}}$

Q32. The pair of equations $y = 9$ and $y + 7 = 0$ has. →

(a) one solution (b) Two solutions (c) (∞) many solutions (d) No solution.

Q33. for the given equation $-cx^2 + ax - b = 0$ then Sum of roots & product of roots =

(a) $\frac{a}{c}, \frac{b}{c}$ (b) $\frac{-b}{a}, \frac{c}{a}$ (c) $\frac{-a}{c}, \frac{-b}{c}$ (d) $\frac{c}{a}, \frac{c}{b}$.

Q34. The given polynomial $\frac{2}{5}x^3 - \frac{5}{2}x^2 + 8x + \frac{7}{3}$ can have →

(a) Atleast 3 zeros (b) Atmost 3 zeros. (c) Exactly 3 zeros (d) None

Q35. If the zeros of the polynomial $t^2 + (a+1)t + b$ are 2 & -3 then which is true → (a) $a + b = -6$ (b) $a + b = 6$ (c) $a - \frac{b}{2} = 6$ (d) None

Q36. If 3 points let us say A, B & C are collinear then which is true →

(a) Area of 'Δ' formed by the coordinates of these points must be equal to ZERO.

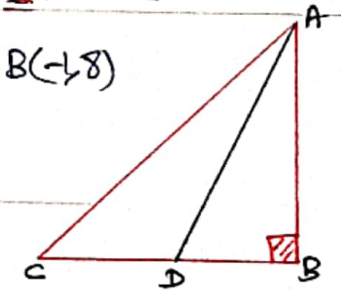
(b) $AB + BC = CA$ [where AB, BC, CA are distance between them]

(c) Either (a) OR (b)

(d) None of these

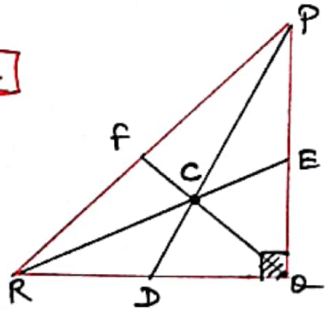
Q37. The ratio in which 'y' axis divides the line segment joining the points (5, -6) & (-1, -4). 'a' is → (a) 1:5 (b) 5:1 (c) 2:1 (d) 1:2

Q38. ΔABC is right angled triangle. Here CD = DB, A(5, -1), B(-1, 8) and C(-3, -2). Then length of AD is →



(a) $(65)^2$ (b) $(65)^{0.5}$ (c) 6.5 (d) Can't determine.

Q39.



In this ΔPQR, PD, RE & FQ are the 3 medians of ΔPQR. P(6, 4), Q(3, 4) and R(-2, 2). Then coordinates of C are

(a) (3, 3) (b) (3, -3) (c) (-3, 3) (d) None

Q40. The coordinates of point A(x, y) if the point A lies on the perpendicular bisector of the line joining the points (3, 6) & (3, 4).

(a) (5, 0) (b) (6, 5) (c) (-5, 0) (d) None

—X—X—

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