

HALF YEARLY EXAM

QUESTION PAPER

ORIGINAL EXAM PAPERS

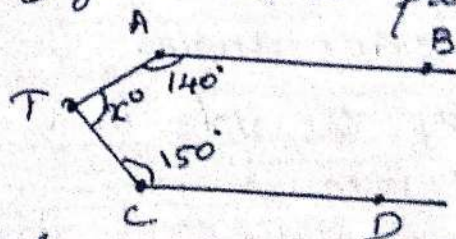


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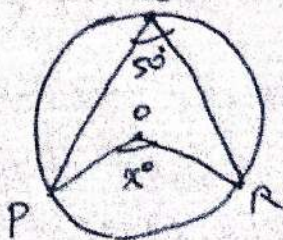
- 1) The set $P = \{x \mid x \in \mathbb{Z} \text{ and } -1 < x < 1\}$ is a
 1) singleton set 2) power set 3) null set 4) subset
- 2) which one of the following is correct?
 1) $\emptyset \subseteq \{a, b\}$ 2) $\emptyset \in \{a, b\}$ 3) $\{a\} \in \{a, b\}$ 4) $a \subseteq \{a, b\}$
- 3) An irrational number between 2 and 2.5 is
 1) $\sqrt{11}$ 2) $\sqrt{5}$ 3) $\sqrt{2.5}$ 4) $\sqrt{8}$
- 4) $0.\overline{34} + 0.\overline{34} =$
 1) $0.6\overline{87}$ 2) $0.\overline{68}$ 3) $0.6\overline{8}$ 4) $0.6\overline{87}$
- 5) $x^{51} + 51$ is divisible by $x+1$, then the remainder is
 1) 0 2) 1 3) 49 4) 50
- 6) Degree of the polynomial $(y^3 - 2)(y^3 + 1)$ is
 1) 9 2) 2 3) 3 4) 6
- 7) Zeros of $(2 - 3x)$ is —
 1) 3 2) 2 3) $2/3$ 4) $3/2$
- 8) The exterior angle of a triangle is equal to the sum of two
 1) Exterior angle 2) Interior opposite angle
 3) Alternate angle 4) Interior angle.
- 9) The interior angle made by the side in a parallelogram is 90° , then the parallelogram is a
 1) rhombus 2) rectangle 3) trapezium 4) kite.
- 10) The mid-point joining of the line joining $(-a, 2b)$ and $(-3a, -4b)$ is
 1) $(2a, 3b)$ 2) $(-2a, -b)$ 3) $(2a, b)$ 4) $(-2a, -3b)$.
- 11) In what ratio does the point $Q(1, 6)$ divide the line segment joining the points $P(2, 7)$ and $R(-2, 3)$
 1) 1:2 2) 2:1 3) 1:3 4) 3:1

- 2) The distance between the point $(5, -1)$ and the origin is
 1) $\sqrt{24}$ 2) $\sqrt{37}$ 3) $\sqrt{26}$ 4) $\sqrt{17}$
- 3) The value of $72^\circ \tan 18^\circ$ is
 1) 0 2) 1 3) 18° 4) 72°
- 14) Given that $\sin \alpha = \frac{1}{2}$ and $\cos \beta = \frac{1}{2}$ then the value of $\alpha + \beta$ is
 1) 0° 2) 90° 3) 30° 4) 60°

- II) Answer the following 10x2=20
- 5) If $A = \{b, d, e, g, h\}$ and $B = \{a, e, c, h\}$ then find $A \cap B$.
- 6) If $n[P(A)] = 256$ then find $n(A)$
- 7) Find the value of $\left(\frac{64}{125}\right)^{-2/3}$
- 8) Give any two rational number between $0.5151151115\dots$ and $0.5353353335\dots$
- 9) i) $P(x) = x^2 - 2\sqrt{2}x + 1$ then find $(2\sqrt{2})$
- 10) Factorise $2x^2 + 15x - 27$
- 11) Find the GCD of $25ab^3c$, $100a^2bc$, $125ab$
- 12) In the given figure AB is parallel to CD then find x°



- 22) Find the value of x given figure

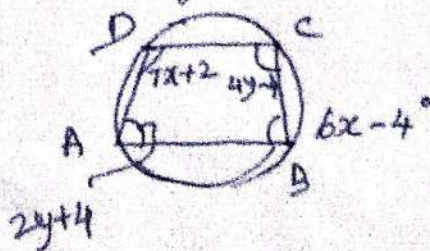


- 14) The chord of length 30cm is drawn at the distance of 8cm from the center of the circle. find the radius of the circle.
- 15) find the mid-point of the line segment joining (a, b) and $(a+2b, 2a-b)$
- 16) find the centroid of the triangle whose vertices are $A(6, -1)$ $B(8, 3)$ $C(10, -5)$
- 17) find the value of $\tan 7^\circ \tan 23^\circ \tan 60^\circ \tan 67^\circ \tan 83^\circ$
- 18) if $\cos A = \frac{3}{5}$, then find the value of $\frac{\sin A - \cos A}{2 + \tan A}$
- (Or)

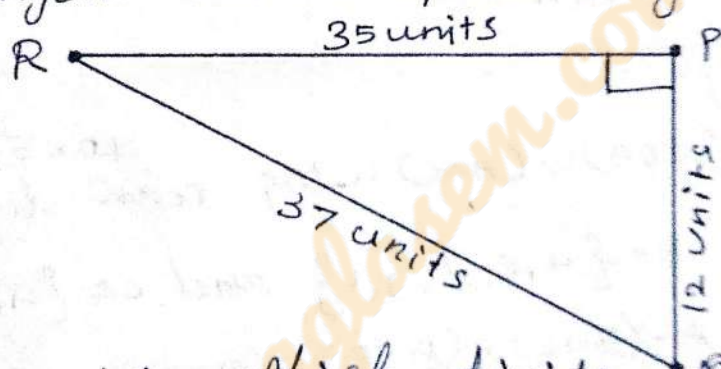
factorise $36m^2 - 49n^2$

II) Answer the following.

- 29) verify $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$ using venn diagram. $10 \times 5 = 50$
- 30) if $A = \{b, c, e, g, h\}$ $B = \{a, c, d, g, i\}$ and $C = \{a, d, e, g, h\}$ then show that $A - (B \cap C) = (A - B) \cup (A - C)$
- 31) Represent $\sqrt{6.5}$ on a number line
- 32) if $x = \sqrt{5} + 2$, then find the value of $x^2 + \frac{1}{x^2}$
- 33) factorise: $x^3 + 13x^2 + 32x + 20$
- 34) find the value of m if $(x-2)$ is a factor of the polynomial $2x^3 - 6x^2 + mx + 4$
- 35) find the all angles of the given cyclic quadrilateral ABCD in the figure



36. The angles of a quadrilateral are in the ratio $2:4:5:7$. Find all the angles.
37. using Section formula Show that the point $A(7, -5)$ $B(9, -3)$ and $(13, 1)$ are collinear.
- 38) if $(x, 3)$ $(6, 4)$ $(8, 2)$ and $(9, 4)$ are the vertices of a parallelogram taken in order, then find the value of x and y .
- 39) Find the value of following
 $(\cos 0^\circ + \sin 45^\circ + \sin 30^\circ)(\sin 90^\circ - \cos 45^\circ + \cos 60^\circ)$
- 40) for the measures in the figure, compute Sine, cosine, and tangent ratios of the angle θ .



- 41) find the points which divide the line segment joining $A(-11, 4)$ and $B(9, 8)$ into four equal parts.
- 42) Given $4a + 3b = 65$ and $a + 2b = 35$ solve by elimination method
 (or)

find the area of the right angle triangle with hypotenuse 5cm and one of the acute angle is $48^\circ 30'$

PART-IV

$$2 \times 8 = 16$$

43)

- a) Draw a triangle ABC, where $AB = 8\text{cm}$ $BC = 6\text{cm}$, and $\angle B = 70^\circ$ and locate its circumcenter and draw circum circle.

(OR)

- b) Construct the Centroid of ΔPQR whose sides are $PQ = 8\text{cm}$ $QR = 6\text{cm}$ $RP = 7\text{cm}$.

- 44) Draw the graph for the following

$$y = 3x - 1$$

(OR)

Use graphical method to solve the following system of equations $3x + 2y = 6$; $6x + 4y = 8$.

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