

TAYARRI

FREE PAST PAPERS

Mathematics (Science)	Tenth Class, 2025 Gujranwala Board	Group - I
Time: 20 Minutes	Objective	Marks: 15

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of the relevant question number. Use marker or pen to fill in the circles. Cutting or filling of two or more circles will result zero mark in that question.

1. The point $(4, -6)$ lies in ----- quadrant.
(A) I (B) II
(C) III (D) IV
2. Roots of the equation $4x^2 - 5x + 2 = 0$ are
(A) Irrational (B) Imaginary
(C) Rational (D) Real
3. How many common tangents can be drawn for two disjoint circles?
(A) 4 (B) 3
(C) 2 (D) 5
4. A line which has two points common with a circle is called
(A) Sine of a circle (B) Cosine of a circle
(C) Tangent of a circle (D) Secant of a circle
5. $20^\circ = \dots\dots$
(A) $360'$ (B) $630'$
(C) $1200'$ (D) $3600'$
6. A histogram is a set of adjacent
(A) Squares (B) Rectangles
(C) Circles (D) Triangles
7. Radii of a circle are
(A) All equal (B) Double of the diameter
(C) All unequal (D) Half of any chord
8. $\omega^4 = \dots\dots$
(A) 1 (B) ω^2
(C) 0 (D) ω
9. If $6 : m :: 9 : 12$, then $m =$
(A) 8 (B) 9
(C) 12 (D) 18
10. $\frac{x^3 + 1}{(x - 1)(x + 2)}$ is
(A) A proper fraction (B) Improper fraction
(C) Constant term (D) Identity
11. The solution set of $25x^2 - 1 = 0$ is.
(A) $\{ \pm \frac{1}{25} \}$ (B) $\{ \pm 5 \}$
(C) $\{ \pm 1 \}$ (D) $\{ \pm \frac{1}{5} \}$
12. In the figure, 'o' is the centre of the circle, then angle x is

Figure: a circle with its centre marked o. The rest of the figure — the lines drawn inside the circle and the angle marked x — has not survived in the printed source and could not be recovered.

- (A) 55° (B) 110°
(C) 125° (D) 220°
13. $4x^2 = 7$ is
(A) Linear equation (B) Standard form of quadratic equation
(C) Pure quadratic equation (D) Exponential equation
14. A set with no element, is called
(A) Subset (B) Empty set
(C) Singleton set (D) Super set
15. The simplest form of the ratio $\frac{(x + y)(x^2 + xy + y^2)}{x^3 - y^3}$ is
(A) $\frac{x + y}{x - y}$ (B) $\frac{x - y}{x + y}$
(C) 1 (D) $\frac{x + y}{x^2 + xy + y^2}$

Mathematics (Science)	Tenth Class, 2025 Gujranwala Board	Group - I
Time: 2:10 Hours	Subjective	Marks: 60

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II, however, question No. NINE (9) is compulsory.

SECTION - I

- Q.2 Write short answers / solve any SIX (6) questions:** (2 × 6 = 12)
- Define pure quadratic equation.
 - Solve by factorization: $3y^2 = y(y - 5)$
 - Write down any two names of the methods for solving a quadratic equation.
 - Find the nature of roots of the quadratic equation:
 $16x^2 - 24x + 9 = 0$
 - Evaluate $(-1 + \sqrt{-3})^8 + (-1 - \sqrt{-3})^8$
 - Write the quadratic equation having roots 2, -6
 - Define ratio and give one example.
 - Find fourth proportional to $p^3 + q^3$, $p^2 - q^2$, $p^2 - pq + q^2$
 - If y varies inversely as x and $y = 7$, when $x = 2$, find y when $x = 126$.
- Q.3 Write short answers / solve any SIX (6) questions:** (2 × 6 = 12)
- Resolve into partial fractions: $\frac{3x-1}{x^2-1}$
 - Define a rational fraction and give an example.
 - What is meant by union of two sets?
 - Find the sets X and Y if $X \times Y = \{(a, a), (b, a), (c, a), (d, a)\}$
 - What is meant by intersection of two sets?
 - If $X = \{a, b, c\}$ and $Y = \{d, e\}$ then find $X \times Y$.
 - What is meant by class limits?
 - Find the arithmetic mean of the data: 45, 60, 74, 58, 65, 63, 49
 - Find the geometric mean of observations 2, 4, 8
- Q.4 Write short answers / solve any SIX (6) questions:** (2 × 6 = 12)
- Convert $\frac{7\pi}{12}$ into degree.
 - Find l when: $\theta = \pi$ radian, $r = 4.9$ cm
 - Prove that: $\frac{\sin^2\theta}{\cos\theta} + \cos\theta = \sec\theta$
 - How many minutes are there in two right angles?
 - Define chord of the circle.
 - Define secant of a circle.
 - Define circumangle.
 - Define regular polygon.
 - Construct a circle of radius 2cm.

SECTION - II

Note: Every question has 8 marks (each part = 4 marks)

- Q.5 (a)** Solve: $5x^{1/2} = 7x^{1/4} - 2$
- (b)** The product of two positive consecutive numbers is 182. Find the numbers.
- Q.6 (a)** Find 'x' in the proportion:
 $p^2 + pq + q^2 : x :: \frac{p^3 - q^3}{p + q} : (p - q)^2$
- (b)** Resolve into partial fractions: $\frac{x}{(x-3)^2}$
- Q.7 (a)** If $U = \{1, 2, 3, \dots, 20\}$, $X = \{1, 3, 7, 9, 15, 18, 20\}$ and $Y = \{1, 3, 5, \dots, 17\}$, then show that $X - Y = X \cap Y'$
- (b)** Calculate the variance for the data: 9, 3, 8, 8, 9, 8, 9, 18
- Q.8 (a)** If $\tan\theta = \frac{4}{3}$ and $\cos\theta < 0$, then find the values of trigonometric function at θ .
- (b)** Inscribe a circle in a triangle ABC with sides $|AB| = 5\text{cm}$, $|BC| = 3\text{cm}$, $|CA| = 3\text{cm}$
- Q.9** Prove that one and only one circle can pass through three non-collinear points.

OR

Prove that the measure of a central angle of a minor arc of a circle, is double that of the angle subtended by the corresponding major arc.

Notes on this transcription

- Typeset by Tayarri from the printed 2025 Gujranwala Board paper. Question wording, numbering and option order follow the source exactly. No answer key is included.
- The source is an "UNSOLVED" guide reprint rather than an original board sheet, so no paper code is printed on it.
- The first objective item is printed as "1.1" in the source; the items are numbered 1-15 here, following the printed sequence.
- Q.12 (objective):** the figure is reproduced in words only. In the printed source the interior of the circle has filled in as a solid grey patch; only the centre dot survives, so the construction and the position of angle x cannot be read. It has not been reconstructed or guessed.
- Q.5(a) (subjective):** the source prints the exponents as a small 1 stacked above 2 and above 4 with no fraction bar; they are set here as $x^{1/2}$ and $x^{1/4}$.
- Q.6(a) (subjective):** the first character of the proportion is covered by the source watermark. It is read as $p^2 + pq + q^2$, which is the only reading that makes the proportion resolve.

TAYARRI

FREE PAST PAPERS

Mathematics (Science)	Tenth Class, 2025 Gujranwala Board	Group - II
Time: 20 Minutes	Objective	Marks: 15

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of the relevant question number. Use marker or pen to fill in the circles. Cutting or filling of two or more circles will result zero mark in that question.

- The circumference of a circle is called
(A) Chord (B) Segment
(C) Boundary (D) Sector
- Product of cube roots of unity is
(A) 0 (B) 1
(C) -1 (D) 3
- A 4cm long chord subtends a central angle of 60° . The radial segment of this circle is
(A) 1 cm (B) 2 cm
(C) 3 cm (D) 4 cm
- The third proportional of x^2 and y^2 is
(A) $\frac{y^2}{x^2}$ (B) x^2y^2
(C) $\frac{y^4}{x^2}$ (D) $\frac{y^2}{x^4}$
- A line which has two points in common with a circle is called
(A) Sine of a circle (B) Cosine of a circle
(C) Tangent of a circle (D) Secant of a circle
- If $a : b = x : y$, then alternando property is
(A) $\frac{a}{x} = \frac{b}{y}$ (B) $\frac{a}{b} = \frac{x}{y}$
(C) $\frac{a+b}{b} = \frac{x+y}{y}$ (D) $\frac{a-b}{x} = \frac{x-y}{y}$
- The distance of any point of the circle to its centre is called
(A) Radius (B) Diameter
(C) Chord (D) An arc
- The identity $(5x + 4)^2 = 25x^2 + 40x + 16$ is true for
(A) All values of x (B) Three values of x
(C) Two values of x (D) One value of x
- $\operatorname{cosec}^2\theta - \cot^2\theta = \text{-----}$
(A) -1 (B) 1
(C) 0 (D) $\tan\theta$
- $\alpha^2 + \beta^2$ is equal to
(A) $\alpha^2 - \beta^2$ (B) $\frac{1}{\alpha^2} + \frac{1}{\beta^2}$
(C) $(\alpha + \beta)^2 - 2\alpha\beta$ (D) $\alpha + \beta$
- Mean is affected by change in-----
(A) Value (B) Ratio
(C) Origin (D) Place
- The solution set of equation $4x^2 - 16 = 0$ is
(A) $\{\pm 4\}$ (B) $\{4\}$
(C) $\{\pm 2\}$ (D) $\{2\}$
- The number of elements in power set $\{1, 2, 3\}$ is
(A) 9 (B) 8
(C) 6 (D) 4
- The number of terms in a standard quadratic equation $ax^2 + bx + c = 0$ is
(A) 4 (B) 3
(C) 2 (D) 5
- The range of $R = \{(1, 3), (2, 2), (3, 1), (4, 4)\}$ is
(A) $\{1, 2, 4\}$ (B) $\{3, 2, 4\}$
(C) $\{1, 3, 4\}$ (D) $\{1, 2, 3, 4\}$

Mathematics (Science)	Tenth Class, 2025 Gujranwala Board	Group - II
Time: 2:10 Hours	Subjective	Marks: 60

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II, however, question No. NINE (9) is compulsory.

SECTION - I

Q.2 Write short answers / solve any SIX (6) questions: (2 × 6 = 12)

- (i) Solve by factorization: $4 - 17x^2 = 32x$
- (ii) Write $\frac{(x-3)(x+7)}{7} = -1$ in standard form.
- (iii) Define quadratic equation and give an example.
- (iv) Find the discriminant of $x^2 - 3x + 3 = 0$
- (v) Evaluate: $\omega^{-13} + \omega^{-17}$
- (vi) Write quadratic equation having roots: $-i + 1, i + 1$
- (vii) State theorem of componendo - dividendo.
- (viii) Find mean proportional to 25 and 49
- (ix) Find fourth proportional to $4x^4, 2x^3, 18x^5$

Q.3 Write short answers / solve any SIX (6) questions: (2 × 6 = 12)

- (i) Define fraction and give one example.
- (ii) Resolve into partial fractions: $\frac{x-5}{x^2+2x-3}$
- (iii) Write down De Morgan's Laws.
- (iv) If $U = (4, 5, 6, 7, \dots, 25)$, $X = (11, 13, 17, 19, 23)$ and $Y = (4, 5, 6, 7, \dots, 17)$, then find $(X \cap Y)$
- (v) Find a and b if $(a - 2, 2b + 1) = (3a + 1, b - 3)$
- (vi) Define Onto function.
- (vii) What is Histogram?
- (viii) Write down any two properties of arithmetic mean.
- (ix) Find the median for the frequency distribution:

X	Frequency
1	3
2	8
3	5
4	3
5	1

Q.4 Write short answers / solve any SIX (6) questions: (2 × 6 = 12)

- (i) What is meant by a degree?
- (ii) Define coterminal angles. Give an example.
- (iii) Find the distance travelled by a cyclist moving in a circle of radius 15m, if he makes 3 revolutions.
- (iv) Verify that $\cot\theta \sec\theta = \operatorname{cosec}\theta$
- (v) Differentiate between acute angle and obtuse angle.
- (vi) Define central angle.
- (vii) Define tangent of a circle.
- (viii) The length of the side of an equilateral triangle is 9.5cm, What is its perimeter?
- (ix) Draw a tangent at any point on the circumference of a circle.

SECTION - II

Note: Every question has 8 marks (each part = 4 marks)

Q.5 (a) Solve the equation: $2x^4 + x^3 - 6x^2 + x + 2 = 0$
(b) Solve by using synthetic division, if '3' and '-4' are the roots of the equation $x^4 + 2x^3 - 13x^2 - 14x + 24 = 0$

Q.6 (a) Solve by using Componendo - Dividendo Theorem:

$$\frac{(x+5)^3 - (x-3)^3}{(x+5)^3 + (x-3)^3} = \frac{13}{14}$$

(b) Resolve $\frac{7x+4}{(3x+2)(x+1)^2}$ into partial fractions.

Q.7 (a) If $U = \{x \mid x \in \mathbb{N} \wedge 3 \leq x \leq 25\}$,
 $X = \{x \mid x \text{ is prime} \wedge 7 < x \leq 23\}$
 $Y = \{x \mid x \in \mathbb{W} \wedge 4 < x \leq 17\}$ then find the value of $X' \cap Y'$

(b) Find the standard deviation of the data: 40, 60, 70, 80, 90

Q.8 (a) The base of a rectangle is 25 feet and the height of the rectangle is 13 feet. Find the angle that the diagonal of the rectangle makes with the base.

(b) Circumscribe a circle about an equilateral triangle ABC with each side of length 4 cm.

Q.9 Prove that one and only one circle can pass through three non-collinear points.

OR

Prove that any two angles in the same segment of a circle are equal.

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- Q.6 (objective):** option (D) is printed as shown, with x in the left-hand denominator. It is reproduced as printed.
- Q.3(iv) (subjective):** the three sets are printed with round brackets rather than braces in the source; reproduced as printed.