

CLASS 10 MATH TEST PAPER 29 (MCQ & 2 MARKER)

Class 10 - Mathematics

Time Allowed: 1 hour

Maximum Marks: 30

Section A

1. If $3825 = 3^x \times 5^y \times 17^z$, then the value of $x + y - 2z$ is: [1]
 - a) 2
 - b) 1
 - c) 3
 - d) 0
2. A quadratic polynomial, the sum of whose zeroes is 0 and one zero is 3, is [1]
 - a) $x^2 - 9$
 - b) $x^2 + 3$
 - c) $x^2 - 3$
 - d) $x^2 + 9$
3. If α and β are the zeroes of the polynomial $ax^2 + bx + c$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta}$ is [1]
 - a) $\frac{b}{a}$
 - b) $\frac{b}{c}$
 - c) $\frac{-b}{c}$
 - d) $\frac{c}{a}$
4. Sum of two numbers is 80 and their difference is 36. Find the numbers. [1]
 - a) 52, 28
 - b) 40, 40
 - c) 44, 36
 - d) 58, 22
5. The lines represented by $3x + y - 12 = 0$ and $x - 3y + 6 = 0$ intersects the x - axis at [1]
 - a) $(-6, 0)$ and $(4, 0)$
 - b) $(-6, 0)$ and $(-4, 0)$
 - c) $(6, 0)$ and $(-4, 0)$
 - d) $(6, 0)$ and $(4, 0)$
6. Which of the following is **not** a quadratic equation? [1]
 - a) $x(x + 1) + 8 = (x + 2)(x - 2)$
 - b) $(x - 2)^2 + 1 = 2x - 3$
 - c) $2x + \frac{3}{x} = 5$
 - d) $(2x - 1)(x - 3) = (x + 5)(x - 1)$
7. If $x \neq y$ and the sequences x, a_1, a_2, y and x, b_1, b_2, y each are in A.P., then $\left(\frac{a_2 - a_1}{b_2 - b_1}\right)$ is _____. [1]
 - a) $\frac{3}{4}$
 - b) 1
 - c) $\frac{2}{3}$
 - d) $\frac{3}{2}$
8. The value of x for which $(8x + 4)$, $(6x - 2)$ and $(2x + 7)$ are in A.P., is [1]
 - a) $-\frac{15}{2}$
 - b) $\frac{2}{15}$
 - c) $-\frac{2}{15}$
 - d) $\frac{15}{2}$
9. In a $\triangle ABC$, AD is the bisector of $\angle BAC$. If $AB = 6$ cm, $AC = 5$ cm and $BD = 3$ cm, then $DC =$ [1]
 - a) 11.3 cm
 - b) 4.5 cm
 - c) 3.5 cm
 - d) 2.5 cm

10. In two triangles $\triangle PQR$ and $\triangle ABC$, it is given that $\frac{AB}{BC} = \frac{PQ}{PR}$. For these two triangles to be similar, which of the following should be true? [1]

a) $\angle A = \angle P$ b) $CA = QR$
c) $\angle B = \angle Q$ d) $\angle B = \angle P$

11. If $R(5, 6)$ is the midpoint of the line segment AB joining the points $A(6, 5)$ and $B(4, y)$ then y equals [1]

a) 7 b) 12
c) 5 d) 6

12. If $\cos A = \frac{5}{8}$, then value of $\cot A \cdot \sin A$ is: [1]

a) $\frac{8}{5}$ b) $\frac{5}{8}$
c) $\frac{8}{\sqrt{39}}$ d) $\frac{5}{\sqrt{39}}$

13. If the area of a sector of a circle is $\frac{1}{8}$ of the area of the circle, then the central angle of the sector is: [1]

a) 45° b) 90°
c) 60° d) 30°

14. If a sphere is inscribed in a cube, then the ratio of the volume of the cube to the volume of the sphere is [1]

a) $6 : \pi$ b) $\pi : 6$
c) $\pi : 4$ d) $4 : \pi$

15. If the mean of data is 27 and its median is 33 then the mode is [1]

a) 43 b) 45
c) 30 d) 47

16. A bag contains 50 balls of which $2x$ are red, $3x$ are white and $5x$ are blue. A ball is selected at random. The probability that it is not white is [1]

a) $\frac{7}{10}$ b) $\frac{2}{5}$
c) $\frac{7}{45}$ d) $\frac{3}{5}$

17. Someone is asked to take a number from 1 to 100. The probability that it is a prime is [1]

a) $\frac{1}{40}$ b) $\frac{1}{5}$
c) $\frac{1}{4}$ d) $\frac{6}{25}$

18. At one end of a diameter PQ of a circle of radius 5 cm, tangent XPY is drawn to the circle. The length of chord AB parallel to XY and at a distance of 8 cm from P is [1]

a) 6 cm b) 5 cm
c) 7 cm d) 8 cm

19. **Assertion (A):** Lines represented by equations $x + y = 3$ and $2x + 2y = 12$ are parallel lines. [1]
Reason (R): System of coincident lines and intersecting lines is known as consistent.

a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

20. **Assertion (A):** If one root of the quadratic equation $4x^2 - 10x + (k - 4) = 0$ is reciprocal of the other, then value of k is 8. [1]

Reason (R): Roots of the quadratic equation $x^2 - x + 1 = 0$ are real.

- a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false. d) A is false but R is true.

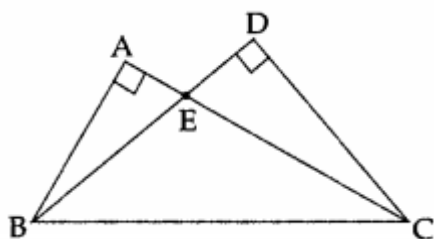
Section B

21. The traffic lights at three different road crossings change after every 48 seconds, 72 seconds and 108 seconds respectively. If they change simultaneously at 7 a.m., at what time will they change together next? [2]

OR

Prove that $6 + 3\sqrt{2}$ is an irrational number, given that $\sqrt{2}$ is an irrational number.

22. In the adjoining figure, two triangles ABC and DBC are on the same base BC in which $\angle A = \angle D = 90^\circ$. If CA and BD meet each other at E, show that $AE \times CE = BE \times DE$. [2]



23. Find the point on y-axis which is equidistant from $(-5, -2)$ and $(3, 2)$. [2]

OR

Find the coordinates of a point A, where AB is the diameter of a circle whose centre is $(2, -3)$ and B is $(1, 4)$.

24. If $m \sin A + n \cos A = p$ and $m \cos A - n \sin A = q$, prove that $m^2 + n^2 = p^2 + q^2$. [2]
25. In a simultaneous throw of a pair of dice, find the probability of getting a doublet of odd numbers. [2]