CLASS 10 MATH TEST PAPER 14

Class 10 - Mathematics

Time Allowed: 1 hour **Maximum Marks: 30**

Section A

1. If a = $2^2 \times 3^x$, b = $2^2 \times 3 \times 5$, c = $2^2 \times 3 \times 7$ and LCM (a, b, c) = 3780, then x is equal to **[1]**

   a) 3 b) 0

   c) 1 d) 2

2. Prime factorisation of 882 is: **[1]**

   a) $2^2 \times 3^3 \times 7$ b) $2 \times 3^2 \times 7^2$

   c) $2^3 \times 3 \times 7^2$ d) $2^2 \times 3^2 \times 7$

3. The ratio of HCF to LCM of the least composite number and the least prime number is: **[1]**

   a) 1 : 1 b) 2 : 1

   c) 1 : 2 d) 1 : 3

4. If α and β are the zeros of the polynomial f(x) = x^2 + px + q, then a polynomial having $\frac{1}{\alpha}$ and $\frac{1}{\beta}$ is its zero is **[1]**

   a) qx^2 + px + 1 b) x^2 + qx + p

   c) x^2 – px + q d) px^2 + qx + 1

5. If the two zeroes of a quadratic polynomial are $\pm\sqrt{5}$, then the quadratic polynomial is: **[1]**

   a) $4\left(x^2 - 5\right)$ b) $(x + \sqrt{5})^2$

   c) $x^2 - \sqrt{5}$ d) x^2 + 5

6. A quadratic polynomial whose zeros are $\frac{3}{5}$ and $\frac{-1}{2}$, is **[1]**

   a) $10x^2$ - x + 3 b) $10x^2$ + x - 3

   c) $10x^2$ - x -3 d) $10x^2$ + x + 3

7. If α and β are the zeroes of the polynomial ax^2 - 5x + c and $\alpha + \beta = \alpha\beta$ = 10, then: **[1]**

   a) a = $\frac{1}{2}$, c = 5 b) a = $\frac{5}{2}$, c = 1

   c) a = 5, c = $\frac{1}{2}$ d) a = 1, c = $\frac{5}{2}$

8. The value of k for which the system of equations 3x - y + 8 = 0 and 6x - ky + 16 = 0 has infinitely many solutions, is **[1]**

   a) 2 b) $\frac{1}{2}$

   c) $-\frac{1}{2}$ d) -2

9. Which out of the following type of straight lines will be represented by the system of equations 3x + 4y = 5 and 6x + 8y = 7? **[1]**

a) Perpendicular to each other

b) Intersecting

c) Coincident

d) Parallel

10. If am = bl and bn $\neq$ cm, then the system of equations **[1]**

ax + by = c

Ix + my = n

a) Has a unique solution.

b) Has infinitely many solutions.

c) Has no solution.

d) May or may not have a solution.

11. If one root of the equation $3x^2$ - 10x + 3 = 0 is $\frac{1}{3}$ then the other root is **[1]**

a) $\frac{1}{3}$

b) 3

c) $\frac{-1}{3}$

d) -3

12. For what values of k, the equation kx^2 - 6x - 2 = 0 has real roots? **[1]**

a) $k \geq \frac{-9}{2}$

b) $k \leq -5$

c) $k \leq -2$

d) $k \leq \frac{-9}{2}$

13. If the discriminant of the quadratic equation $3x^2$ - 2x + c = 0 is 16, then the value of c is: **[1]**

a) $\sqrt{2}$

b) 0

c) 1

d) -1

14. If the first three terms of an A.P. are 3p - 1, 3p + 5, 5p + 1 respectively; then the value of p is: **[1]**

a) 2

b) 5

c) -3

d) 4

15. The 11^{th} term from the end of the A.P.: 10, 7, 4, ..., -62 is: **[1]**

a) -32

b) 25

c) 0

d) 16

16. The next term of the A.P. $\sqrt{18}$, $\sqrt{32}$ and $\sqrt{50}$ is **[1]**

a) $\sqrt{72}$

b) $\sqrt{84}$

c) $\sqrt{64}$

d) $\sqrt{80}$

17. The perimeters of two similar triangles ABC and PQR are 56 cm and 48 cm respectively. $\frac{PQ}{AB}$ is equal to **[1]**

a) $\frac{7}{6}$

b) $\frac{8}{7}$

c) $\frac{6}{7}$

d) $\frac{7}{8}$

18. $\triangle ABC \sim \triangle DEF$ and their perimeters are 32 cm and 24 cm respectively. If AB = 10 cm, then DE equals: **[1]**

a) 8 cm

b) 7.5 cm

c) $5\sqrt{3}$ cm

d) 15 cm

19. **Assertion (A):** If n^{th} term of an A.P. is 7 - 4n, then its common difference is -4. **[1]**

Reason (R): Common difference of an A.P. is given by $d = a_{n-1} - a_n$

a) Both A and R are true and R is the correct

b) Both A and R are true but R is not the

explanation of A.

correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

20. **Assertion (A):** ABCD is a trapezium with DC || AB. E and F are points on AD and BC respectively, such that EF || AB. Then $\frac{AE}{ED} = \frac{BF}{FC}$. **[1]**

Reason (R): Any line parallel to parallel sides of a trapezium divides the non-parallel sides proportionally.

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.

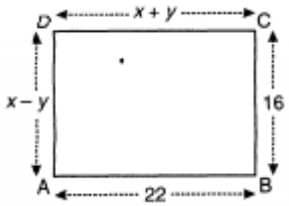
c) A is true but R is false.

d) A is false but R is true.

Section B

21. If one zero of the polynomial x^2 - 8x + k exceeds the other by 2, then find the zeroes and the value of k. **[2]**

22. In the figure given below, ABCD is a rectangle. Find the values of x and y. **[2]**



23. Solve for x: $\frac{1}{x} - \frac{1}{x-2} = 3$; $x \neq 0, 2$ **[2]**

24. In an A.P, if $S_n = 3n^2 + 5n$ and $a_k = 164$, find the value of k. **[2]**

25. In the given figure, ABCD is a parallelogram. AE divides the line segment BD in the ratio 1 : 2. If BE = 1.5 cm, then find the length of BC. **[2]**