CLASS 10 MATH TEST PAPER 5 [MCQ]

Class 10 - Mathematics

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

Section A

1. If $p^2 = \frac{32}{50}$, then p is a/an **[1]**

   a) irrational number b) whole number

   c) rational number d) integer

2. The exponent of 3 in the prime factorization of 864 is: **[1]**

   a) 2 b) 3

   c) 4 d) 8

3. If the HCF of 360 and 64 is 8, then their LCM is: **[1]**

   a) 2880 b) 2780

   c) 2480 d) 512

4. If p is prime, then H.C.F. and L.C.M. of p and p + 1 would be **[1]**

   a) H.C.F. = p, L.C.M. = p + 1 b) H.C.F. = 1, L.C.M. = p(p + 1)

   c) H.C.F. = p, L.C.M. = p(p + 1) d) H.C.F. = p(p + 1), L.C.M. = 1

5. If α, β are zeroes of the polynomial x^2 -1, then value of $(\alpha + \beta)$ is: **[1]**

   a) 0 b) 1

   c) -1 d) 2

6. A quadratic polynomial whose sum and product of zeroes are 2 and -1 respectively is: **[1]**

   a) $x^2 + 2x + 1$ b) $x^2 - 2x - 1$

   c) $x^2 + 2x - 1$ d) $x^2 - 2x + 1$

7. If the zeroes of a quadratic polynomial $ax^2 + bx + c$, $c \neq 0$ are equal, then **[1]**

   a) c and a have opposite sign b) b and c have opposite sign

   c) c and a have the same sign d) b and c have the same sign

8. Which of the following is a quadratic polynomial with zeroes $\frac{5}{3}$ and 0? **[1]**

   a) 3x(x - 5) b) $\frac{5}{3}x^2$

   c) $x^2 - \frac{5}{3}$ d) 3x(3x - 5)

9. In a cyclic quadrilateral ABCD, it is being given that $\angle A = (x + y + 10)°$ $\angle B = (y + 20)°$, $\angle C = (x + y - 30)°$ and $\angle D = (x + y)°$. Then, $\angle B$ = ? **[1]**

   a) 110° b) 70°

c) 100° d) 80°

10. The sum of the numerator and denominator of a fraction is 12. If the denominator is increased by 3, the fraction becomes $\frac{1}{2}$, then the fraction is **[1]**

a) $\frac{5}{7}$ b) $\frac{8}{7}$

c) $\frac{6}{7}$ d) $\frac{4}{7}$

11. If 2x + 3y = 15 and 3x + 2y = 25, then the value of x - y is: **[1]**

a) -10 b) 8

c) 10 d) -8

12. If the lines represented by equations 3x + 2my = 2 and 2x + 5y + 1 = 0 are parallel, then the value of m is: **[1]**

a) $\frac{2}{5}$ b) $\frac{15}{4}$

c) $\frac{3}{2}$ d) $-\frac{5}{4}$

13. Which of the following equations has the sum of its roots as 3? **[1]**

a) $-x^2 + 3x - 3 = 0$ b) $\sqrt{2}x^2 - \frac{3}{\sqrt{2}}x + 1 = 0$

c) $2x^2 - 3x + 6 = 0$ d) $3x^2 - 3x + 3 = 0$

14. The roots of the equation $x^2 + 3x - 10 = 0$ are: **[1]**

a) -2, 5 b) 2, -5

c) 2, 5 d) -2, -5

15. In the Maths Olympiad of 2020 at Animal Planet, two representatives from the donkey's side, while solving a quadratic equation, committed the following mistakes. **[1]**

i. One of them made a mistake in the constant term and got the roots as 5 and 9.

ii. Another one committed an error in the coefficient of x and he got the roots as 12 and 4.

But in the meantime, they realised that they are wrong and they managed to get it right jointly. Find the quadratic equation.

a) $2x^2 + 7x - 24 = 0$ b) $x^2 + 4x + 14 = 0$

c) $3x^2 - 17x + 52 = 0$ d) $x^2 - 14x + 48 = 0$

16. A cyclist takes 2 hours less to cover a distance of 200 km, if he increases his speed by 5 km/hr. Then his original speed is **[1]**

a) 26 km/hr b) 20 km/hr

c) 24 km/hr d) 25 km/hr

17. Two circles are always **[1]**

a) similar but may not be congruent b) congruent

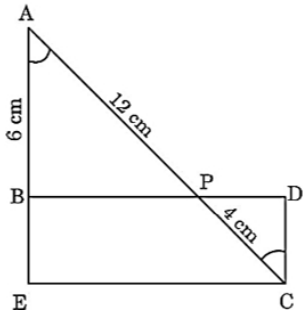
c) neither similar nor congruent d) congruent as well as similar

18. If $\triangle ABC \sim \triangle DEF$ and $\angle A = 47^o$, $\angle E = 83^o$, then $\angle C$ is equal: **[1]**

a) 50^o b) 130^o

c) 83^o d) 47^o

19. In the given figure, ∠A = ∠C, AB = 6 cm, AP = 12 cm, CP = 4 cm. Then length of CD is: **[1]**



a) 18 cm

b) 2 cm

c) 8 cm

d) 6 cm

20. In △ABC and △DEF, $\frac{AB}{DE} = \frac{BC}{FD}$. Which of the following makes the two triangles similar? **[1]**

a) ∠B = ∠D

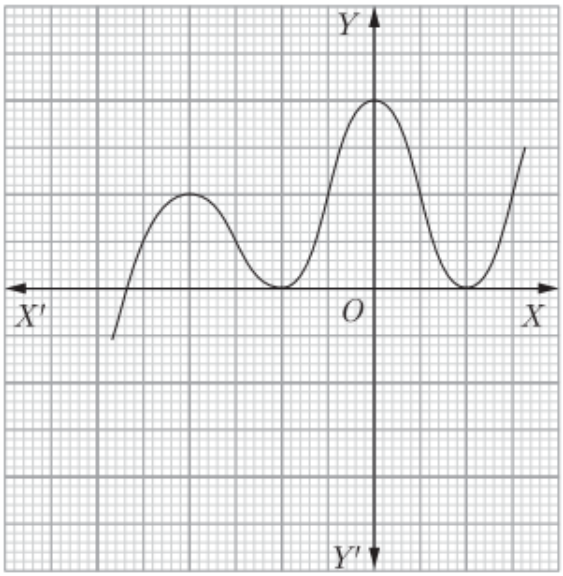
b) ∠B = ∠E

c) ∠A = ∠F

d) ∠A = ∠D

21. **Assertion (A):** The graph y = f(x) is shown in figure, for the polynomial f(x). The number of zeros of f(x) is 4. **[1]**

Reason (R): The number of zero of the polynomial f(x) is the number of point of which f(x) cuts or touches the axes.



a) Both A and R are true and R is the correct explanation of A.

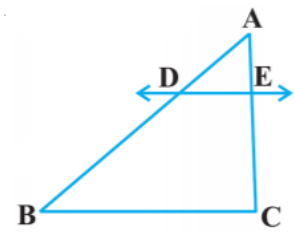
b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

22. **Assertion (A):** D and E are points on the sides AB and AC respectively of a △ABC such that AD = 5.7 cm, DB = 9.5 cm, AE = 4.8 cm and EC = 8 cm then DE is not parallel to BC. **[1]**

Reason (R): If a line divides any two sides of a triangle in the same ratio then it is parallel to the third side.



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.

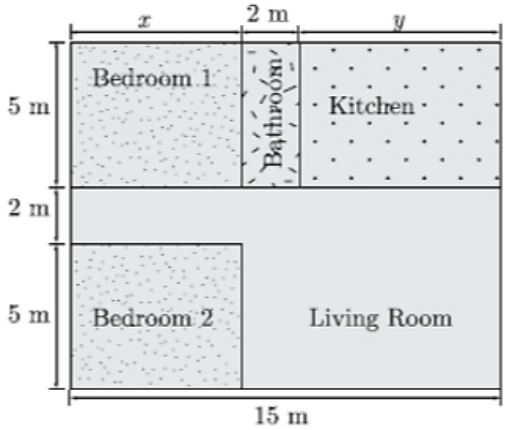
d) A is false but R is true.

Section B

Question No. 23 to 26 are based on the given text. Read the text carefully and answer the questions: **[4]**

Architect : An architect is a skilled professional who plans and designs buildings and generally plays a key role in their construction. Architects are highly trained in the art and science of building design. Since they bear responsibility for the safety of their buildings' occupants, architects must be professionally licensed.

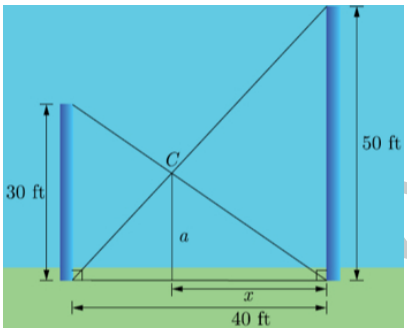
Vishu is a licensed architect and design very innovative house. She has made a house layout for her client which is given below. In the layout, the design and measurements has been made such that area of two bedrooms and kitchen together is 95 sq. m.



23. Which pair of linear equations does describe this situation?
24. What is the length of the outer boundary of the layout?
25. What is the area of the bedroom 1?
26. What is the area of living room in the layout?

Question No. 27 to 30 are based on the given text. Read the text carefully and answer the questions: **[4]**

Two poles, 30 feet and 50 feet tall, are 40 feet apart and perpendicular to the ground. The poles are supported by wires attached from the top of each pole to the bottom of the other, as in the figure. A coupling is placed at C where the two wires cross.



27. What is the horizontal distance from C to the taller pole?
28. How high above the ground is the coupling?
29. How far down the wire from the smaller pole is the coupling?
30. Find the length of line joining the top of the two poles.