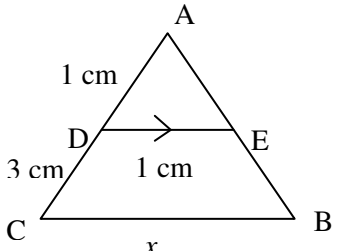
SA-1 MODEL QUESTION PAPER

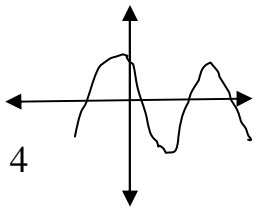
CLASS:– 10 **MATHEMATICS** **MAX. MARKS :– 80**

I. Choose the appropriated answer from the answers given for each question & write its alphabet along with answer in the answer sheet. $\mathbf{1 \times 8 = 8}$

1. 16^{th} term of the Arithmetic Progression 3, 8, 13, ... is
   A) 80 B) 77 C) 78 D) 82
2. If a pair of linear equations is consistent, then the lines will be _____
   A) Parallel B) Always coincident
   C) Intersecting or coincident D) always intersecting
3. In the adjoining figure if DE ∥ BC , then the value of x is __
   A) 3.5 cm B) 3 cm C) 4.2 cm D) 4 cm



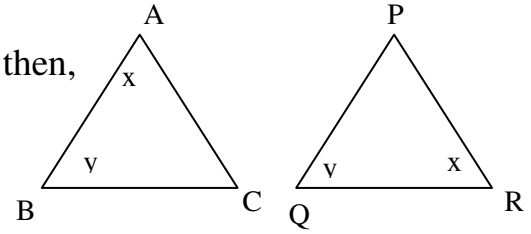
4. If the HCF of 15 and 21 is 3, then the LCM is _____
   A) 105 B) 147 C) 315 D) 45
5. In the adjoining figure, graph of a polynomial is given. The number of zeros of the polynomial is _____
   A) 1 B) 2 C) 3 D) 4



6. The root of equations $x^2 - 4x = 0$ are
   A) 0 and 2 B) -4 and 0 C) -2 and 0 D) 0 and 4
7. Distance between origin and the point P (x , y) is
   A) $\sqrt{x^2 + y^2}$ B) $\sqrt{x + y}$ C) $\sqrt{x - y}$ D) $\sqrt{x^2 + y^2}$
8. In an Arithmetic Progression if $S_5 = 30$ and $S_4 = 20$ and a_5 is _____
   A) 10 B) 50 C) 20 D) 9

II. Write the answers to the following questions $\mathbf{1 \times 8 = 8}$

9. Write the standard form of Quadratic equation.
10. State Fundamental Theorem of Arithmetic.
11. Find the sum of Zeroes of the polynomial $P(x) = x^2 + 3x - 40$
12. Find the co-ordinates of the mid point of the line joining the points (2 , -5) and (-2 , 9).
13. Write the graphical representation of the pair of linear equation $x + 3y - 6 = 0$ and $2x - 3y - 12 = 0$
14. In the figure , if △ ABC and △ PQR are similar then, write the ratio of corresponding sides.



15. Find the sum of first 20 positive even integers.

16. What is distance of the point P (5 , -7) from the x- axis.

III. Solve the following questions. **$2 \times 9 = 18$**

17. Find the HCF of 26 and 91 by prime factor method.

18. Solve : $x + 3y = 6$
$2x - 3y = 12$

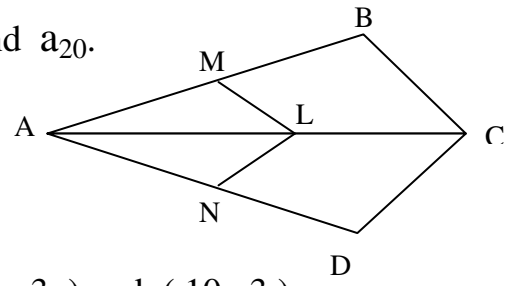
19. Find the roots of the quadratic equations $x^2 - 5x = 6$

20. Find the discriminent and nature of roots of equation $2x^2 - 5x + 3 = 0$

21. 3 , 1 , -1 , -3, ... are in Arithmetic Progression. Find a_{20}.

22. In figure *LM* ‖ *CB* and *LN* ‖ *CD* then prove that

$$\frac{AM}{AB} = \frac{AN}{AD}$$



23. Find the distance between the co-ordinate points (2 , -3) and (10 , 3).

24. Find a quadratic polynomial, when the sum and product of whose zeroes are -3 and 2 respectively. OR

Find the sum and product of zeroes of the polynomial $x^2 - 2x - 8$.

IV. Solve the following questions. **$3 \times 9 = 27$**

25. Prove that $\sqrt{3}$ is a irrational number.

26. Find the H.C.F and L.C.M of 16 and 81 and verify the relation H X L = a X b.

27. Find the zeroes of the quadratic polynomial $4x^2 - 4x + 1$ and verify the relationship between the zeroes and coefficients.

28. The difference between two numbers is 26 and one number is three times the other find them.

OR

A fraction becomes $\frac{9}{11}$, if 2 is added to both the numerator and the denominator. If 3 is added to both the numerator and the denominator it becomes $\frac{5}{6}$. Find the fraction.

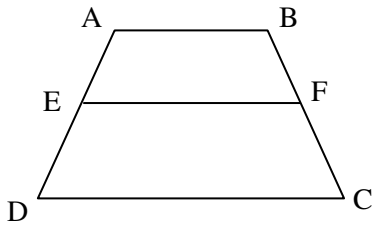
29. Find the sum of the odd number between 0 and 50.

OR

How many terms of an Arithmetic Progression 9 , 7 , 25 , ... must be taken to give a sum of 636 ?

30. If the sum of first 7 terms of an Arithmetic Progression is 49 and that of seventeen terms is 289. Find the sum of n terms.

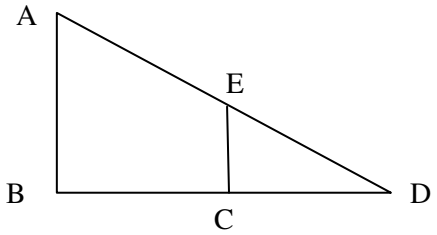
31. ABCD is a trapezium in which AB ‖ DC , E and F are points on non parallel sides AD and BC Respectively. Such that EF is parallel to AB.



So that $\frac{AE}{ED} = \frac{BF}{FC}$

OR

ABCD is a trapezium in which AB ‖ DC and its diagonals intersect each other at the point O. Show that $\frac{AO}{BO} = \frac{CO}{DO}$.



32. A girl of height 90mcm is walking away from the base of a lamp post at a speed of 1.2 ms^{-1}. If the lamp is 3.6 cm above the ground, find the length of her shadow after 4 seconds.

33. Find the co-ordinates of the point which divides the line joining the points (-1, 7) and (4 , -3) in the ratio 2 : 3.

OR

If (1 , 2) , (4 , y) (x , 6) and (3 , 5) are the vertices of a parallelogram taken in order , find x and y.

V. Solve the following : $4 \times 4 = 16$

34. Solve by graphical method :

$x + y = 5$ and $x + 2y = 8$

35. A train travels 360 km in an uniform speed. If its speed had been 5 km h^{-1}, then it would have been 1 hour less to cover same distance. Find the speed of the train.

36. If the sum of first 8 terms of an Arithmetic Progression is 136 and that of first 15 terms is 465. Find the sum of first 25 terms.

OR

The sum of the 5^{th} and 9^{th} terms of an Arithmetic Progression is 40 and the sum of the 8^{th} and the 14^{th} term is 64. Find the sum of first 20 terms.

37. Name the type of quadrilateral formed by joining the vertices (4 , 5) (7 , 6) (4 , 3) and (1 , 2) . Give reason for your answer.

VI. Answer the following question $5 \times 1 = 5$

38. State and prove Thales theorem.

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