

LBS SCHOOL

FIRST TERM EXAMINATION (2017-18)

CLASS- IX

SUBJECT: MATHEMATICS

M.M- 80

TIME: 3 HOURS

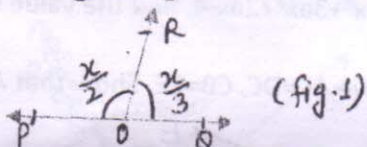
SET-1

GENERAL INSTRUCTIONS:

- QUESTIONS 1 TO 6 CARRY 1 MARK EACH
- QUESTIONS 7 TO 12 CARRY 2 MARKS EACH
- QUESTIONS 13 TO 22 CARRY 3 MARKS EACH
- QUESTIONS 23 TO 30 CARRY 4 MARKS EACH

QUESTION 1 TO 6 CARRY 1 MARK EACH

1. Examine whether $(7 + \sqrt{7})(7 - \sqrt{7})$ is a rational number or irrational number.
2. If $x+1$ is the factor of $p(x)=2x^2 + kx$, then find the value of k .
3. In which quadrant the following points lie: (a) $(-3,5)$ (b) $(2,2)$
4. Determine the value of x in the given figure 1.



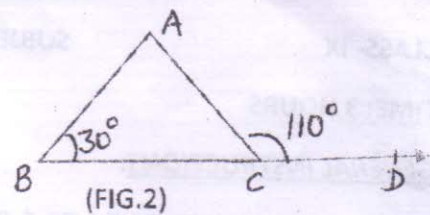
5. (a) Angle opposite to two equal sides of a triangle are _____.
- (b) The angle opposite to the greater side of a triangle is _____.
6. The area of a triangle is 6cm^2 . And its base is 4cm . its height is _____.

QUESTION 7 TO 12 CARRY 2 MARKS EACH

7. Find any three irrational numbers between the rational numbers $\frac{5}{7}$ and $\frac{9}{11}$
8. Find the product (i) $(x+7)(x+7)$
(ii) $(x+8)(x-9)$
9. Factorize : $36x^2 - 12x + 1$
10. Write any two Euclid's axiom.



11. An exterior angle of a triangle is 110° and one of the interior opposite angle is 30° . find the other two angles of the triangle. (fig. 2)



12. ABC is a right angled triangle in which $\angle A = 90^\circ$ and $AB = AC$. Find $\angle B$ and $\angle C$

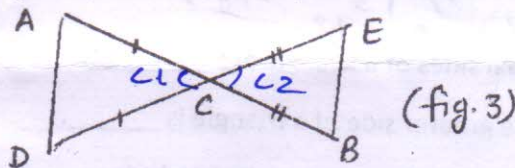
QUESTION 13 TO 22 CARRY 3 MARKS EACH

13. Find the value of a and b in the following : $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a + b\sqrt{3}$

14. Factorize : $x^3 - 8x^2 + 17x - 10$

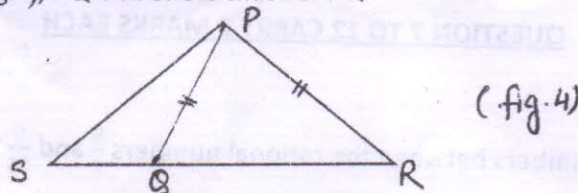
15. If $(x-2)$ is a factor of $x^5 - 3x^4 - ax^3 + 3ax^2 + 2ax - 4$, find the value of a.

16. In the given figure 3, we have $AC = DC$, $CB = CE$. Show that $AB = DE$.



17. Prove that the sum of interior angles of a triangle is 180 degree.

18. In the given (fig. 4), $PQ = PR$. Show that $PS > PQ$.



19. The perimeter of a rhombus is 260m and one of its diagonal is 66m. Find the area of the rhombus and its other diagonal.

20. Draw the graph of $y = 3x$. Check whether $(3, 9)$ lies on the graph.

$\frac{3-\sqrt{3}}{3+2\sqrt{3}} \times \frac{3-2\sqrt{3}}{3-2\sqrt{3}}$

$\frac{2\sqrt{3} \times \sqrt{3}}{2}$

$2+2+2+2+2$

- 21 (i) Express the linear equation $3 = 2x$ in the form $ax + by + c = 0$. 1+2
 (ii) Solve the equation $2x + 1 = x - 3$, and represent the solution on the number line.

- 22 If $a + b + c = 14$, $a^2 + b^2 + c^2 = 74$ and $a^3 + b^3 + c^3 = 434$. Then find the value of abc .

QUESTION 23 TO 30 CARRY 4 MARKS EACH

- 23 (a) Express $0.\overline{6}$ in the form p/q , where p and q are integers and $q \neq 0$. 2+2

- (b) Find the value of x , if $3 + 2^x = (64)^{1/2} + (27)^{1/3}$

- 24 Factorize: $25x^2 + 16y^2 + 4z^2 - 40xy + 16yz - 20xz$

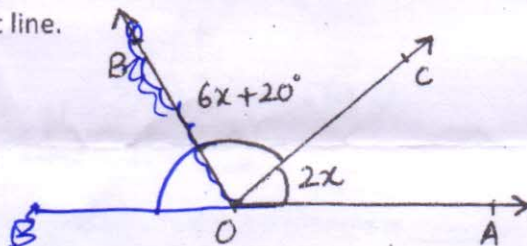
- 25 Factorize as the sum or difference of two cubes:

(a) $x^5 + 27x^2$

(b) $64x^3 - 27y^3$

- 26 Plot the points $A(3, 2)$, $B(-3, 2)$, $C(-3, -2)$ and $D(3, -2)$. Find the area of the figure drawn by joining the points and also name the shape obtained.

- 27 In the given figure 5, if $\angle BOC = 6x + 20^\circ$ and $\angle COA = 2x$. find the value of x , for which OB becomes a straight line.



(fig. 5)

- 28 The perimeter of a triangle is 50cm. one side of a triangle is 4cm longer than the smaller side and the third side is 6cm less than twice the smaller side. Find the area of the triangle.

- 29 Find the value of k if,

(a) $x = 2, y = 1$ is the solution of $2x + 3y = k$

(b) $x = 1, y = 3$ is the solution of $x + 2y = k$

- 30 The taxi fare in a city is as follows: For the first kilometer, the fare is Rs. 8 and for the subsequent distance it is Rs. 5 per km. Taking the distance covered as x km and total fare Rs y , write a linear equation for this information and draw its graph.

$$\begin{array}{r} 2 \\ 36 \\ \times 4 \\ \hline 144 \end{array}$$

Ans

$$\frac{1000}{31/8}$$