



BLOOM PUBLIC SCHOOL
Half Yearly Exam (2018 – 2019)
MATHEMATICS – IX
SAMPLE PAPER

Time :- 3 hrs

M.M. :- 80

Date :- / / 17

General instructions:-

- The question paper consists of 30 questions divided into four sections A, B, C and D. Section A comprises 6 questions of 1 mark each, Section B comprises 6 questions of 2 marks each, Section C comprises 10 questions of 3 marks each and Section D comprises 8 questions of 4 marks each.
- All questions are compulsory.

SECTION A

1. Write the degree of zero polynomial.
2. Write the equation of x- axis.
3. In which quadrant does a point both of whose coordinates are negative lie ?
4. There are infinite number of lines which pass through distinct points.(True/ False)
5. If two complementary angles are in the ratio 4:5 , what are the measures of the angles ?
6. If (2,0) is a solution of the linear equation $2x+3y = k$, find the value of k.

SECTION B

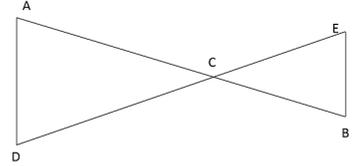
7. Simplify $\sqrt{45} - 3\sqrt{20} + 4\sqrt{5}$
8. Express $0.\overline{585}$ in $\frac{p}{q}$ form.
9. Locate $\sqrt{5}$ on the number line.
10. Without actually calculating the cubes, find the value of $(28)^3 + (-15)^3 + (-13)^3$
11. Write any two solutions of the equation $x-2y = 4$
12. Is it possible to construct a triangle with length of its sides as 4cm, 3 cm and 7 cm ? Give reason for your answer.

SECTION C

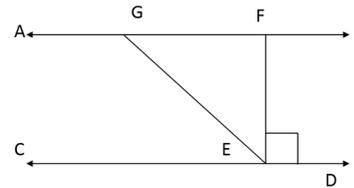
13. . Simplify $[9 (64^{\frac{1}{3}} + 125^{\frac{1}{3}})^3]^{\frac{1}{4}}$
14. Simplify $(\sqrt{5} - \sqrt{2}) (\sqrt{5} + \sqrt{2})$
15. Factorise $x^3 - 3x^2 - 9x - 5$.
16. The cost of 3 pens and 2 copies is ₹ 110. Represent this situation with a linear equation in two variables. Also, find the cost of one copy, if one pen costs ₹20.
17. Answer the following questions:
 - (i) What is the abscissa of all the points on the x axis

- (ii) If $P(-1,1)$, $R(1,-1)$, $T(-4,4)$ are plotted on the graph paper, which point lies in the fourth quadrant?
- (iii) Write the point whose ordinate is 4 and which lies on y axis.

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

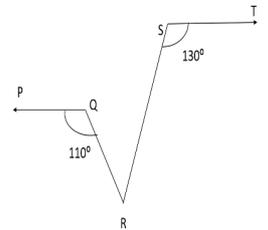


19. In the given figure, if AB is parallel to CD , EF is perpendicular to CD and $\angle GED = 126^\circ$, find $\angle AGE$, $\angle GEF$ and $\angle FGE$.



OR

In the figure, if PQ is parallel to ST , $\angle PQR = 110^\circ$ and $\angle RST = 130^\circ$, find $\angle QRS$.



20. Q17. In the fig, if AB and CD are parallel, find the value of x

OR

In the figure, sides QP and RQ of a $\triangle PQR$ are produced to points S and T respectively. $\angle SPR = 150^\circ$ and $\angle SQT = 110^\circ$, find $\angle PRQ$.

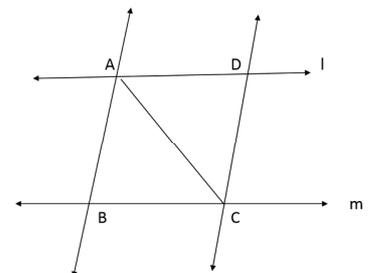
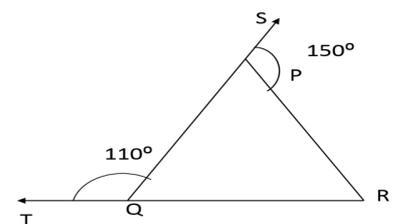
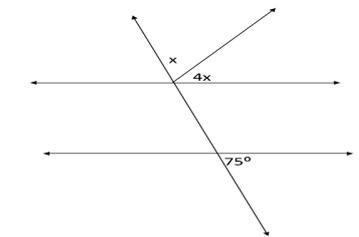
21. $f(x) = x^2 - 5x + 7$, evaluate $f(2) - f(-1) + f\left(\frac{1}{3}\right)$

OR

Show that $2x + 1$ is a factor of polynomial $2x^3 - 11x^2 - 4x + 1$

22. Let l and m are two parallel lines intersected by another pair of parallel lines p and q . Show that $\triangle ABC \approx \triangle CDA$

OR



AD is an altitude of an isosceles triangle ABC in which AB = AC.

Show that i) AD bisects BC. ii) AD bisects $\angle A$.

SECTION D

23. Find the value a and b in

$$\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a - b\sqrt{3}$$

24. If $a + b + c = 5$ and $ab + bc + ca = 10$, then prove that $a^3 + b^3 + c^3 - 3abc = -25$.

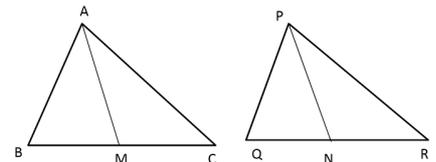
25. i) For what value of c, the linear equation $2x + cy = 8$ has equal values of x and y for its solution.

ii) Find the solution of the linear equation $2x + 6y = 12$, which represents a point on y axis.

26. Two sides AB and BC and median AM of one triangle ABC are respectively equal to sides PQ and QR and median PN of ΔPQR . Show that

i) $\Delta ABM \cong \Delta PQN$

ii) $\Delta ABC \cong \Delta PQR$



OR

Show that in a right angled triangle, the hypotenuse is the longest side.

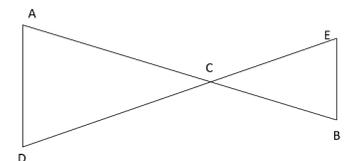
27. In an isosceles triangle ABC, with $AB = AC$, the bisectors of $\angle B$ and $\angle C$ intersect each other at O. Show that

i) $OB = OC$

ii) AO bisects $\angle A$.

OR

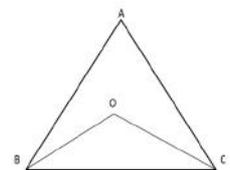
In the figure, $\angle A < \angle D$ and $\angle B < \angle E$. Show that $DE < AB$.



28. If the bisector of angles $\angle B$ and $\angle C$ of a triangle ABC meet at a point O, then prove that $\angle BOC = 90^\circ + \frac{1}{2} \angle A$

OR

Prove that sum of the angles of a triangle is 180°



29. Do as directed :

i) Verify that

$$x^3 + y^3 + z^3 - 3xyz = \frac{1}{2}(x+y+z) [(x-y)^2 + (y-z)^2 + (z-x)^2]$$

ii) Give the possible expression for the dimensions of the cuboid whose volume is given by : $12ky^2 + 8ky - 20k$

30. Mr. Sharma wants to donate a rectangular plot to an orphanage. Three vertices of a rectangle are $(-1,1)$, $(5,1)$ and $(5,3)$. Plot these points and find the coordinates of the fourth vertex.