M.M.-40 **MID TERM PRACTICE PAPER (2020)** **M.T.-1.5Hr.**

General Instructions:- There are 14 questions in this paper. All questions are Compulsory. Section A contains Q.1-6, of 2 marks each. Section B Contains Q.7 –10, 4 questions of 3 mark each. Section C contains Q.11-14, each of 4 marks.

1. Give possible expressions for the dimensions of the cuboids whose volume is given below :

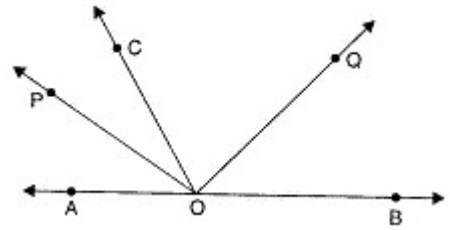
   Area : $3x^2 - 12x$

2. Plot the following pairs of numbers as points in the Cartesian plane. Use the scale 1 cm = 1 unit on the axes.

x	–3	0	–1	4	2
y	7	–3.5	–3	4	–3

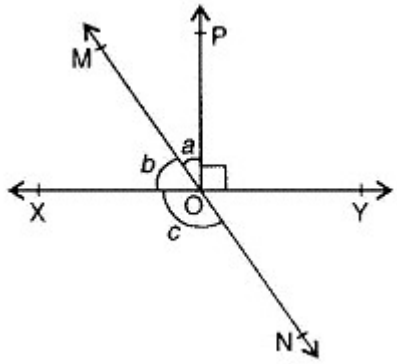
3. Plot the points associated with the pairs A(–2, 3), B(–2, –2), C(1, –4), D(–3, 0), E(0, 4) and F(1, 2).

4. In figure, OP bisects $\angle$ AOC, OQ bisects $\angle$ BOC and OP $\perp$ OQ. Show that points A, O and B are collinear.



5. Prove that two lines that are respectively perpendicular to two parallel lines are parallel to each other.

6. In figure, line XY and MN intersect at O. If $\angle POY = 90^\circ$ and a : b = 2 : 3, find c.



7. Expand the following using suitable identities :

   $\left[\frac{1}{4}a - \frac{1}{2}b + 1\right]^2$

8. Give the geometric representation of $2x + 9 = 0$ as an equation in one variable.

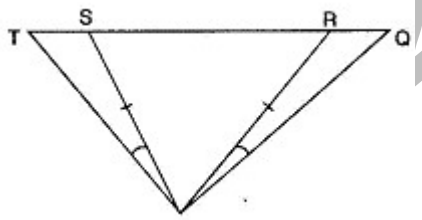
9. Express the following in the form $\frac{p}{q}$, where p and q are integers and $q \neq 0$

$0.4\overline{7}$

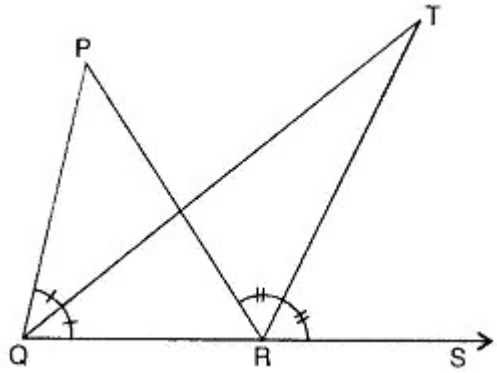
10. Factorise :
$x^3 + 13x^2 + 32x + 20$

11. Show how $\sqrt{5}$ can be represented on the number line.

12. In figure, PS = PR, $\angle TPS = \angle QPR$. Prove that PT = PQ.



13. In figure, the side QR of $\triangle PQR$ is produced to a point S. If the bisectors of $\angle PQR$ and $\angle PRS$ meet at point T, then prove that $\angle QTR = \frac{1}{2}\angle QPR$.



14. The triangular side walls of a flyover have been used for advertisements. The sides of the walls are 13 m, 14 m and 15 m. The advertisements yield and earning of Rs 2000 per m^2 a year. A company hired one of its walls for 6 months. How much rent did it pay?