Q1) Solve the equation 3 (x+2) =2(2x−1) and represent the solution on:
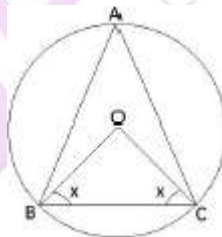
i. the Number Line.

ii. the Cartesian Plane

Q2) ABCD is a parallelogram. The bisector of angle A also bisects BC at X. Prove that:

AD = 2AB.

Q3) Angles of a quadrilateral are in ratio 2:4:5:7. Find all the angles.

Q4) Prove that the median of a triangle divides it into two triangles of equal area.

Q5) In the given figure, O is the centre of the circle. Prove that $\angle OBC + \angle BAC = 90°$

Q6) Construct an angle of $22\frac{1}{2}°$ using scale and compass only.

Q7) A solid cube of side 12 cm is cut into eight cubes of equal volume. What will be the side of the new cube?

Q8) Eleven bags of wheat flour, each marked 5 kg, actually contained the following weights of flour (in kg).

4.97, 5.05, 5.08, 5.03, 5.00, 5.06, 5.08, 4.98, 5.04, 5.07, 5.00.

Find the probability that any of these bags chosen at random contains more than 5 kg of flour.

The Questions number from 9 to 18 below carries 4 marks each:

Q9) Let the cost of a pen and a pencil be 'x' and 'y' respectively. A girl pays Rs 16 for 2 Pens and 3 Pencils. Write the given data in the form of a linear equation in two variables. Also, represent it graphically.

Q10) Prove that the quadrilateral formed (if possible) by the internal angle bisectors of any quadrilateral is cyclic.

Q11) In the figure, ABCD is a parallelogram and P, Q are the points on the diagonal BD such that BQ = DP. Show that APCQ is a parallelogram.
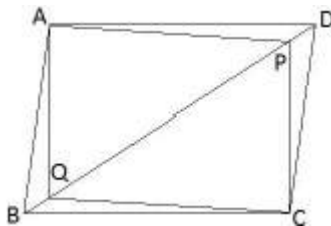
Q12) Draw the graph of linear equation x = 4 and y = 5. Find the area formed by the two graphs and the axes.

Q13) A metal pipe is 77 cm long. The inner diameter of a cross-section is 4 cm, the outer diameter being 4.4 cm. Find its total surface area.

Q14) Construct a ΔXYZ in which $\angle Y=60°, \angle Z=45°$ and $XY+YZ+ZX=11$ cm. Also, write the steps of construction.

Q15) In a society, 6 children out of 28 did not participate in the campaign 'Save Energy'. Find the probability that a child selected at random.

     i. participated in the Campaign.

     ii. did not participate in the Campaign.

     Which values of children are depicted here?

Q16) A cylindrical pillar is 50 cm in diameter and 3.5 m in height. Find the cost of painting the curved surface of the pillar at the rate of Rs 12.50 per meter square.

Q17) How many liters of milk can a hemispherical bowl of diameter 10.5 cm hold?

Q18) Which social networking site is more beneficial in learning mathematics and how?

Q19) In a parallelogram ABCD, if $\angle A = 2x+25$ ° and $\angle B = 3x-5$ °, find the value of x.

Q20) Find the points on the graph of the linear equation $3x+5y=15$, where it cuts the x-axis and y-axis.