

**ST MARY'S ANGLO-INDIAN HR. SEC. SCHOOL, CHENNAI-1**

**FL\06** 30 May 2020

**HOME PRACTICE TEST SERIES – 6**

**X STD**

**MATHEMATICS**

**SECTION –I**

**Marks: 40**

**Answer all the questions:**

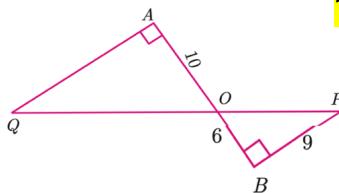
Each question carries **2 marks**.

$$12 \times 2 = 24$$

1. In the adjoining figure,

QA and PB are perpendiculars to AB.

If AO = 10 cm, BO=6 cm and PB=9 cm. Find AQ.



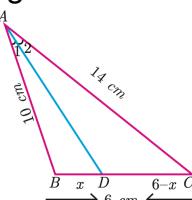
2. A boy of height 90cm is walking away from the base of a lamp post at a speed of 1.2m/sec.

If the lamppost is 3.6m above the ground, find the length of his shadow cast after 4 seconds.

3. In the adjoining figure, AD is the bisector of  $\Delta BAC$ ,

if  $AB = 10$  cm,  $AC = 14$  cm and  $BC = 6$  cm.

Find  $BD$  and  $DC$ .



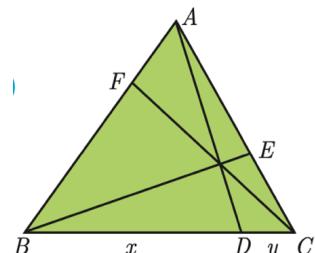
4. P and Q are the mid-points of the sides  $CA$  and  $CB$  respectively of a

$\Delta ABC$ , right angled at C. Prove that  $4(AQ^2 + BP^2) = 5AB^2$ .

5. An Aeroplane leaves an airport and flies due north at a speed of 1000 km/hr. At the same time, another aeroplane leaves the same airport and flies due west at a speed of 1200 km/hr. How far apart will be the two planes after  $1\frac{1}{2}$  hours?

6. Suppose  $AB$ ,  $AC$  and  $BC$  have lengths 13, 14 and 15 respectively.

If  $\frac{AF}{FB} = \frac{2}{5}$  and  $\frac{CE}{EA} = \frac{5}{8}$ , Find  $BD$  and  $DC$ .



7. In equilateral  $\Delta ABC$  if  $AD \perp BC$ , then prove that,  $3AB^2 = 4AD^2$ .

8. If the standard deviation of a data is 3.6 and each value of the data is divided by 3, then find the new variance and new standard deviation.

9. What is the probability that a leap year selected at random will contain 53 Saturdays.

10. A bag contains 6 green balls, some black and red balls. Number of black balls is as twice as the number of red balls. Probability of getting a green ball is thrice the probability of getting a red ball. Find (i) number of black balls (ii) total number of balls.

11. If A and B are two events such that  $P(A) = \frac{1}{4}$ ,  $P(B) = \frac{1}{2}$  and  $P(A \text{ and } B) = \frac{1}{8}$  find (i)  $P(A \text{ or } B)$  (ii)  $P(\text{not } A \text{ and not } B)$ .

12. A and B are two candidates seeking admission to IIT. The probability that A getting selected is 0.5 and the probability that both A and B getting selected is 0.3. Prove that the probability of B being selected is at most 0.8.

## **SECTION -II**

**Answer both the questions:**

Each question carries **8** marks.

**$2 \times 8 = 16$**

13. Construct a triangle  $\Delta PQR$  such that  $QR = 5$  cm,  $\angle P = 30^\circ$  and the altitude from  $P$  to  $QR$  is of length 4.2 cm.
14. Draw the graph of  $y = 2x^2$  and hence solve  $2x^2 - x - 6 = 0$