VISWABHARATI - GUDIVADA

WORK SHEET - 4

Chapters : Similar Triangles, Probability, Sets

Class: X **Time: 75min**

Subject: Mathematics **Marks: 30**

Name_____ Class/Sec: _____ Roll No: _____

Answer the following Questions. **15 × 2 = 30**

1. In ΔPQR, ST is a line such that $\frac{PS}{SQ} = \frac{PT}{TR}$ and also ∠PST = ∠PRQ. Prove that ΔPQR is an isosceles triangle.
2. A flag pole 4m tall casts a 6m shadow. At the same time, a nearby building casts a shadow of 24m. How tall is the building?
3. In ΔABC, XY // AC and XY divides the triangle into two parts of equal area. Find the ratio of $\frac{AX}{XB}$
4. The hypotenuse of a right triangle is 6m more then twice of the shortest side. If the third side is 2m, less than the hypotenuse, find the sides of the triangle.
5. Draw a line segment of length 7.2cm and divide it in the ratio 5:3. Measure the two parts?
6. Rahim takes out all the hearts from the cards. What is the probability of
   (i) picking out a card that is not a heart.
   (ii) picking out the ace of hearts.
7. A kiddy bank contains hundred 50P coins, fifty Rs. 1 coins twenty Rs.2 coins and ten Rs.5 coins. If it is equally likely that one of the coins will fall out when the bank is turned upside down, what is the probability that the coin
   i) will be a 50p coin? ii) Will not be a Rs. 5 coin?
8. A box contains 50 discs which are numbered from 1 to 50. If one disc is drawn at random from the box, find the probability that it bears
   i) a two digit perfect square number ii) a number divisible by 5
9. A game consists of tossing a one rupee coin 3 times and recording its outcome each time, Hanif wins if all the tosses give the same result i.e. three heads or three tails and loses otherwise. Calculate the probability that Hanif will lose the game.
10. Define i) Mutually exclusive events ii) Elementary event
11. A = {x/x is prime factor of 30} B = {x/x is factor of 24} then find A∪B and A∩B.
12. A = {set of quadrilaterals} B ={square, rectangle, trapezium, rhombus}. State whether A⊂B or B⊂A.
13. Give reason for the following statements.
    i) {2,3,5,7,9,11} ≠ {x:x is a prime number, x<12}
    ii) {1,64,125} ≠ {x:x is a perfect square and perfect cube, x ≤125}
14. If n(A) = 3, n(B) = 5 and n(A∪B) = 7, then find n(A – B) and n(B – A)
15. If A = {set of letters in the word "MATHEMATICS"}
    B = {set of letters in the word "HEADMASTER"}
    Represent AΔB in Venn Diagram.