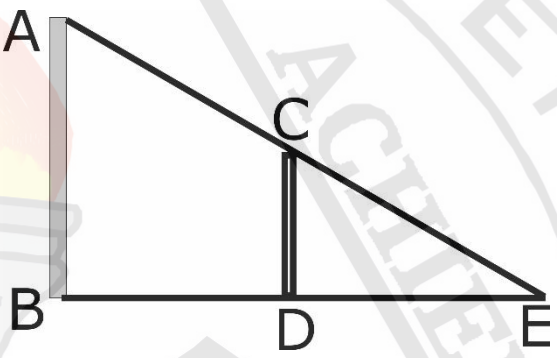
Class X Mathematics

Pre First Term Test Triangles

MAXIMUM MARKS : 30

TIME ALLOWED : ONE HOUR FIFTEEN MINUTES

Geetansha was standing in the ground in front of ATC tower in air force station Hindon. The officer on duty Flight Lieutenant Aman focused the search light of the ATC tower on Geetansha and her shadow was formed on the ground. Look into the figure given below where AB is the ATC tower, CD is Geetansha and DE is her shadow and answer the following questions:



1) If the height of Geetansha is 1.5 m and the length of her shadow is 6 m point E is 36 m away from the tower then what the height of the ATC tower is.

   a) 6 m b) 9 m c) 12 m c) 15 m

2) If Geetansha moves 2 m towards the tower then the length of shadow will:

   a) Increase b) Decrease

   c) Remain same d) Mathematically cannot calculated.

3) Using the data in question 1 find the value of AC: CE

   a) 1: 4 b) 1: 5 c) 4:1 d) 5 : 1

4) Which of the following relations is true?

a) AB: CD = AC: CE b) AB:CD = AE: CE

c) AB: CD = AE:AC d) AB:CD = BE: DE

5) If Geetansha moves away from the tower at a speed of 1.2 m/s then what will be length of her shadow after 5 seconds.

a) 7.2 m b) 6.0 m c) 8.4 m d) 9.6 m

6) **Assertion:** If two angles of any triangle are equal to the corresponding two angles of another triangle then the third angles are not necessarily equal.

Reason: The sum of three angles of any triangle is equal to 180°

a) Both A and R are true and R is the correct reason of A.

b) Both A and R are true and R is not the correct reason of A.

c) A is true but R is false. d) A is false but R is true.

7) **Assertion:** E and F are the points on the sides PQ and PR respectively of a triangle PQR. PE = 4 cm, QE = 4.5 cm, PF = 8 cm and RF = 9 cm. , then EF is not parallel to QR

Reason: In a triangle if two sides are divided proportionally by a line then the line is parallel to the third side.

a) Both A and R are true and R is the correct reason of A.

b) Both A and R are true and R is not the correct reason of A.

c) A is true but R is false. d) A is false but R is true.

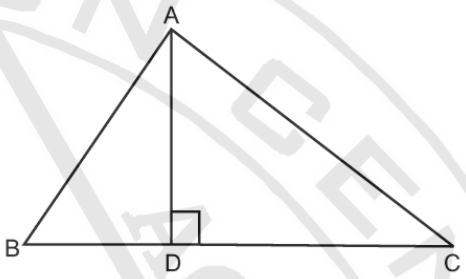
8) Triangle ABC is an isosceles triangle, right angled at C. Therefore

a) $AB^2 = 2AC^2$ b) $BC^2 = 2AB^2$ c) $AC^2 = 2AB^2$ d) $AB^2 = 4AC^2$

9) In a right-angled triangle ABC, right angled at B, AB = x / 2 , BC = *x* + 2 and AC = *x* + 3. The value of *x* is

a) 5 b) 10 c) 12 d) 14

10) In the figure, if $\angle BAC = 90^0$ and AD is perpendicular to BC, then



a) $BD.CD = BC^2$

b) $AB.AC = BC^2$

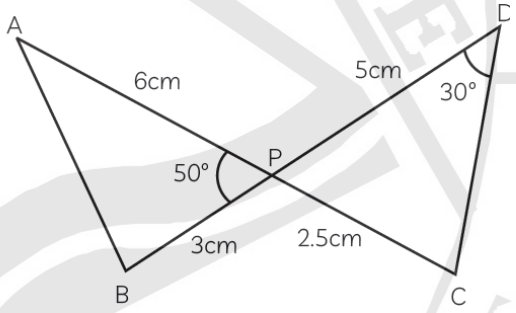
c) $BD.CD = AD^2$

d) $AB.AC = AD^2$

11) If D, E and F are the mid-points of sides BC, CA and AB respectively of Triangle ABC, then the ratio of the areas of DEF to the area of ABC is

a) 1 : 4 b) 1 : 2 c) 1 : 3 d) 2 : 3

12) In the given figure, two line segments AC and BD intersect each other at point P such that PA = 6 cm, PB = 3 cm, PC = 2.5 cm, PD = 5 cm, Then, $\angle PBA$ is equal to



a) 50^0 b) 30^0 c) 60^0 d) 100^0

13) Let ΔABC be similar to ΔDEF and their areas be 81 cm^2 and 144 cm^2. If EF = 24 cm, then length of side BC is ..... cm.

a) 18cm b) 24cm c) 15cm d) 20cm

14) The perimeters of two similar triangles ABC and PQR are 35cm and 45cm respectively, then the ratio of the areas of the two triangles is

a) 49:64 b) 49:81 c) 81:49 d) 81:64

15) For a rhombus ABCD,

a) $4AC^2 = AB^2 + BD^2$ b) $AB^2 = 4AC^2 + 4BD^2$

c) $4AB^2 = AC^2 + BD^2$ d) None of these

16) In the given figure, *DE* || *BC*. The length of side *AD* is

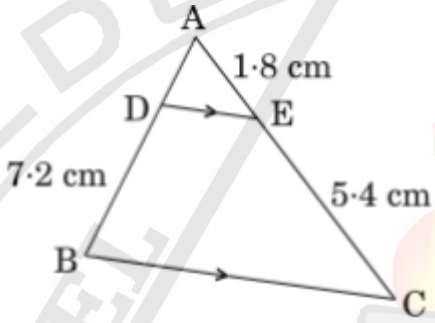
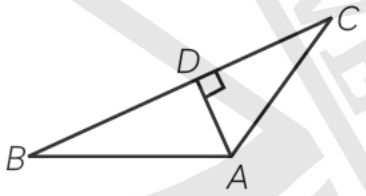


Figure 2

a) 0.4CM B) 1.4CM C) 2.4CM D) 3.4CM

17) In the given figure AD is perpendicular to BC. Then $AB^2 + CD^2$ =



a) $BD^2 + AB^2$ b) $AC^2 + BC^2$

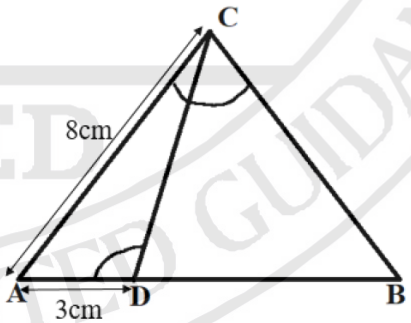
c) $AB^2 + AC^2$ d) $BD^2 + AC^2$

18) In triangle ABC DE is parallel to BC and AD = 3cm, BD = 4cm and BC= 14 cm, then DE equals

a) 7cm b) 6cm

b) c) 4cm d) 3cm

19) In the given figure, ∠ACB=∠CDA, AC = 8cm, AD = 3cm, then BD is



a) 22/3 cm b) 26/3 cm

c) 55/3 cm d) 64/3 cm

20) In the given figure $x =$

a) $\frac{ac}{b+c}$

b) $\frac{bc}{a+c}$

c) $\frac{ac}{a+c}$

d) None of these