**ASSIGNMENT (2020-21)**

**CLASS - X SUBJECT – MATHEMATICS CH- 6(TRIANGLES)**

1. If S is a point on side PQ of a $∆PQR$ such that PS = QS = RS, Then

$\left(a\right)$ $PR.QR=RS^{2}$ $\left(b\right)$ $QS^{2}+RS^{2}=QR^{2}$ $\left(c\right)$ $PR^{2}+QR^{2}=PQ^{2}$ $\left(d\right)$ $PS^{2}+RS^{2}=PR^{2}$

1. It is given that $∆ABC \~ ∆DFE, ∠A=30°, ∠C=50°, AB=5 cm, AC=8 cm and DF=7.5 cm. $Then the following is true:

$\left(a\right)$ $DE=12cm, ∠F=50° \left(b\right) DE=12cm, ∠F=100° $

$\left(c\right) EF=12cm, ∠D=100° \left(d\right) EF=12 cm, ∠D=30°$

1. In $∆ABC, $if $\frac{AD}{AE}=\frac{BD}{EC}$ and $∠ADE=∠ACB, then ∆ABC is: $

$\left(a\right)$ Isosceles Triangle $\left(b\right)$ Right angle Triangle

$\left(c\right)$ Equilateral Triangle $\left(d\right)$ Scalene Triangle

1. In fig, value of AD is:

$\left(a\right)$ $a\sqrt{15 }unit \left(b\right) a^{2}\sqrt{15} unit \left(c\right) \frac{a\sqrt{15}}{2} unit \left(d\right) \frac{a\sqrt{15}}{3} unit $

1. The length of the diagonals of a rhombus are 24 cm and 32 cm. the perimeter of the rhombus is :

$\left(a\right)$ 9 cm $\left(b\right)$ 128 cm $\left(c\right)$ 80 cm $\left(d\right)$ 56 cm

1. In the given fig, $DB⊥BC, DE⊥AB and AC⊥BC, Prove that: \frac{BE}{DE}=\frac{AC}{BC}$



1. In quadrilateral ABCD, $∠B=90°, If AD^{2}=AB^{2}+BC^{2}+CD^{2}, prove that ∠ACD=90°$
2. Though M the mid- point of side CD of a parallelogram ABCD, the line BM is drawn intersecting AC at L and AD produced at E. prove that EL = 2BL.
3. In $∆ABC,D$ is mid point of side BC and $AE⊥BC. If AC>AB$, Show that: $AC^{2}=AD^{2}+\left(\frac{BC}{2}\right)^{2}+BC.DE$
4. In $∆ABC$, Let P and Q be points on AB and AC respectively, such that $PQ∥BC$. Prove that the median AD bisects PQ.
5. Prove that in any triangle, the sum of the square of any two sides is equal to twice the square of the median which bisect the third side.
6. The ration between the areas of the similar triangles is 16 : 25, find the ratio between their:

(a) Perimeter (b) Altitude (c) Medians

1. The sides of a triangle ABC are in the ratio AB : BC : CA = 1 : $\sqrt{2}$ : 1. Show that triangle ABC is a right triangle, right angled at A.
2. Prove that any line parallel to parallel sides of a trapezium divides the non-parallel sides proportionally.
3. In the figure, $DE∥BC$ and $AD=4x-3, AE=8x-7, BD=3x-1 and CE=5x-3, find x.$

