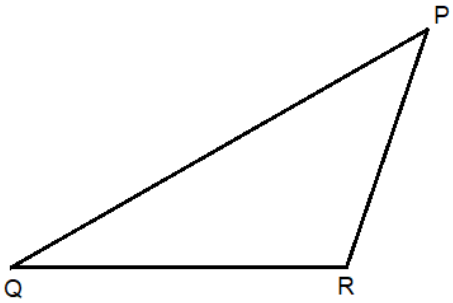
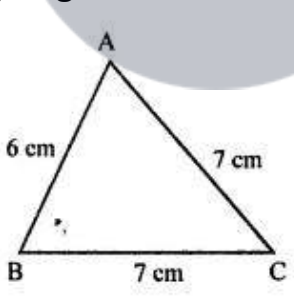
1. In the adjoining figure:
(i) Name the vertex opposite to side PQ.
(ii) Name the side opposite to vertex Q.
(iii) Name the angle opposite to side QR.
(iv) Name the side opposite to ∠R

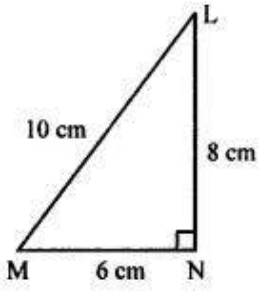


Solution:-
From the figure,
(i) R is the vertex opposite to side PQ.
(ii) PR is the side opposite to vertex Q.
(iii) P is the angle opposite to side QR.
(iv) PQ is the side opposite to ∠R.

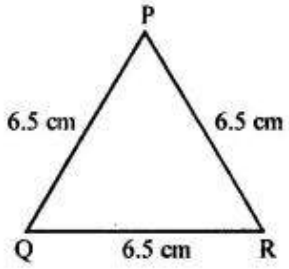
2. Look at the figures given below and classify each of the triangles according to its
(a) Sides
(b) Angles



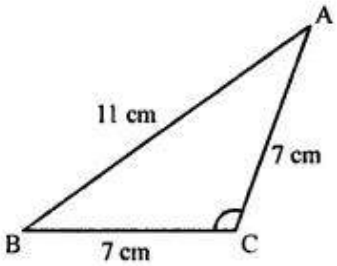
(i)



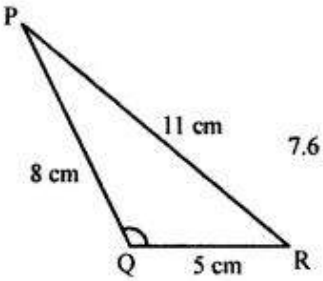
(ii)



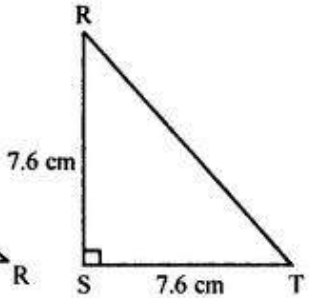
(iii)



(iv)



(v)



(vi)

Solution:-

From the given figure,

(a) According to sides,

(i) Isosceles triangle, because two sides of triangle are equal.

(ii) Scalene triangle, because three sides are unequal.

(iii) Equilateral triangle, because three sides are equal.

(iv) Isosceles triangle, because two sides of triangle are equal.

(v) Scalene triangle, because three sides are unequal.

(vi) Isosceles triangle, because two sides of triangle are equal.

(b) According to angles,

(i) Acute angle triangle, because angle of triangle less than 90^o.

(ii) Right angled triangle, because one of the angle is equal to 90^o.

(iii) Acute angle triangle, because angle of triangle less than 90^o.

(iv) Obtuse angle triangle, because one of the angle is more than 90^o but less than 180^o.

(v) Obtuse angle triangle, because one of the angle is more than 90^o but less than 180^o.

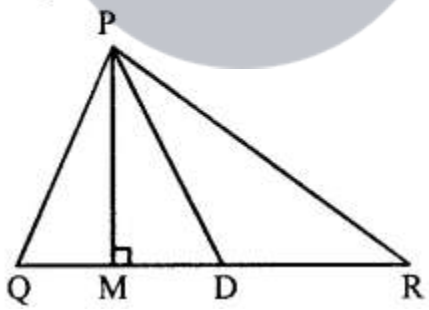
(vi) Right angled triangle, because one of the angle is equal to 90^o.

3. In the given ΔPQR, if D is the mid-point of $\overline{QR}$, then

(i) $\overline{PM}$

(ii) $\overline{PD}$

Is QM = MR?



Solution:-

From the figure,

ΔPQR, D is the mid-point of $\overline{QR}$

So,

(i) $\overline{PM}$ is Altitude

(ii) $\overline{PD}$ is Median

No, QM ≠ MR

4. Will an altitude always lie in the interior of triangle? If no, draw a rough sketch to show such a case.

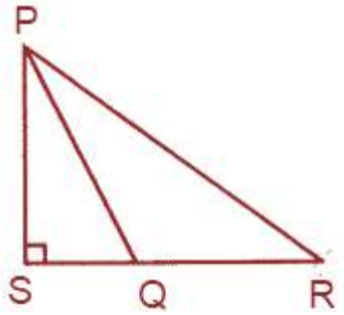
Solution:-

No, it is not necessary an altitude may lie outside of triangle also.

A rough sketch to show such a case,

PS is the altitude of ΔPQR

Draw from P to the side QR



5. Can you think of a triangle in which two altitudes of the triangle are its sides? If yes, draw a rough sketch to show such a case.

Solution:-

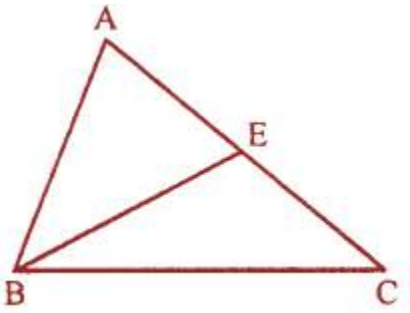
Yes, it is a right angled triangle.

6. Draw rough sketches for the following:

(i) In ΔABC, BE is a median of the triangle.

Solution:-

As per the condition given in the question,



(ii) In ΔPQR, PQ and PR are altitudes of the triangle.

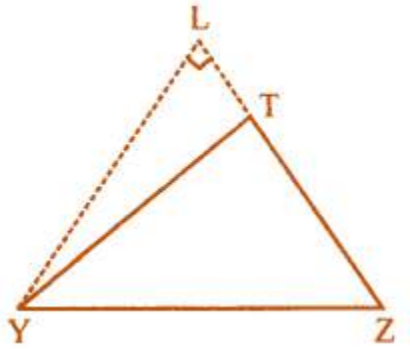
Solution:-

As per the condition given in the question,

(iii) In ΔXYZ, XL is an altitude in the exterior of the triangle.

Solution:-

As per the condition given in the question,



7. Take an equilateral triangle and draw its medians and altitudes and check that the medians and altitude are same.

Solution:-

Consider the equilateral triangle ΔPQR,

PS, QN and MR are altitudes of the triangle.

The altitudes of an equilateral triangle divide the sides into equal parts.

Hence, altitudes are also the medians of the triangle.