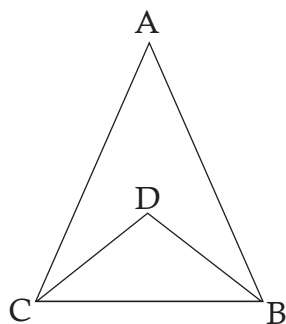


# Triangles

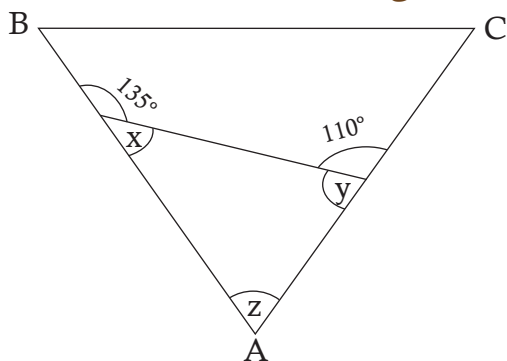
- Q1.** In the figure given below,  $\triangle ABC$  is an isosceles triangle with  $AB = AC$ .  $BD$  and  $CD$  are angle bisectors of  $\angle ABC$  and  $\angle ACB$  respectively. Prove that if a circle is drawn with  $D$  as centre and  $DC$  as radius, it will pass through  $B$  also. (Hint: Prove  $BD = DC$ )



- Q2.** Rajat has labelled a scalene triangle  $ABC$  with sides  $AB = 7$  cm,  $BC = 2$  cm and  $AC = 4$  cm. Is the triangle labelled correctly? If not, find the error.

Answer: \_\_\_\_\_

- Q3.** Find the unknown angles in the following figure:



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

$z =$  \_\_\_\_\_

**Q4.** One of the acute angles in a right-angled triangle is one-fourth of the other. Find the measure of the two acute angles.

Answer: \_\_\_\_\_

**Q5.**  $\triangle XYZ$  is a right-angled triangle, such that  $c$  is the hypotenuse and  $a$  and  $b$  are the other two sides of the triangle. Find

a.  $b$ , if  $a = 40$  cm and  $c = 41$  cm

$a =$  \_\_\_\_\_

b.  $c$ , if  $b = 6$  cm and  $a = 8$  cm

$c =$  \_\_\_\_\_

**Q6.** State True or False:

a. The base angles are equal only in an isosceles triangle. \_\_\_\_\_

b. If the angles of a triangle are in the ratio  $1 : 1 : 2$ , then the triangle is a right angled triangle. \_\_\_\_\_

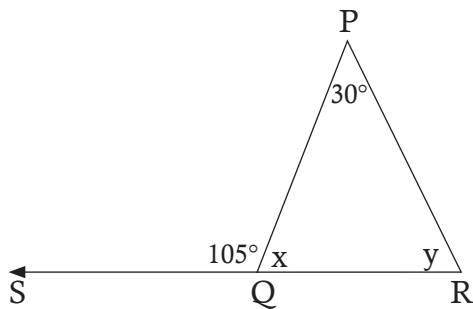
c.  $(3, 4, 5)$  is a Pythagorean triplet. \_\_\_\_\_

d. The sides of a right-angled isosceles triangle are 4 cm, 4 cm and 4.5 cm. \_\_\_\_\_

**Q7.** Sarita walked 12 km due north, then turned right and walked 16 km due west. Find her displacement from the starting position.

Answer: \_\_\_\_\_

**Q8.** In the following figure, find  $x$  and  $y$ . Is  $PQ = PR$ ?



$x =$  \_\_\_\_\_

$y =$  \_\_\_\_\_

$PQ = PR$  : (Yes/No)

**Q9. Give one word for:**

- a. In a triangle, a line joining the a vertex to the mid-point of the opposite side of the vertex : \_\_\_\_\_
- b. The perpendicular from a vertex of the triangle to its opposite side: \_\_\_\_\_
- c. A triangle having two angles of equal measure : \_\_\_\_\_ triangle
- d. The longest side of a right-angled triangle : \_\_\_\_\_

**Q10. Two buildings 12 m and 9 m tall are a certain distance apart. If the distance from the top of each building to a point on the ground is 13 m and 15 m respectively, find the distance between the feet of the two buildings.**

Answer: \_\_\_\_\_

## Answers

- $AB = AC$   
 $\angle ACB = \angle ABC$   
 $\frac{1}{2} \angle DCB = \frac{1}{2} \angle DBC$   
 $BD = DC$
- No, length of the sides are labeled incorrectly as Sum of two sides of a triangle should be greater than the third side.
- $x = 45^\circ$ ;  $y = 70^\circ$ ;  $z = 65^\circ$
- $72^\circ$ ,  $18^\circ$
- a. 9 cm; b. 10 cm
- a. False; b. True; c. True; d. False
- 20 km
- $75^\circ$ ,  $75^\circ$ ; Yes
- a. median; b. altitude; c. isosceles; d. hypotenuse
- 17 m