Triangles
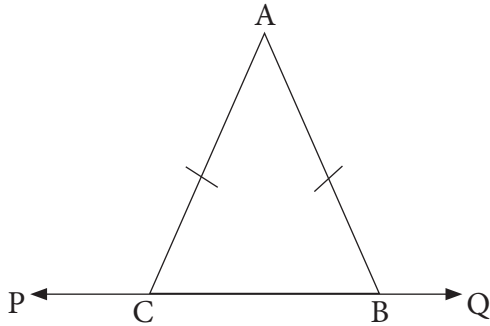
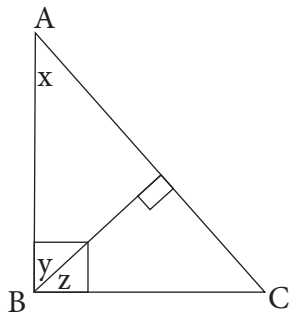**Q1.** In the given isosceles △ABC, AB = AC. Prove that ∠ABQ = ∠ACP.

Q2. Rajesh wants to construct an acute-angled triangle △PQR, having ∠P = 21°, ∠Q = 67° and ∠R = 82° . Jyoti says that it cannot be constructed. Is Jyoti correct? Why, or why not?

Answer: _____

Q3. If ∠ACB = 70°, find the unknown angles in the following figure:

x = _____

y = _____

z = _____

Q4. **The base angle of an isosceles triangle is four times its vertical angle. Find the measure of all the angles and identify the type of triangle.**

Measure of each base angle = _____

Measure of vertical angle = _____

Type of triangle: _____

Q5. **ΔPQR is a right-angled triangle such that c is the hypotenuse and a and b are the other two sides of the triangle. Find**
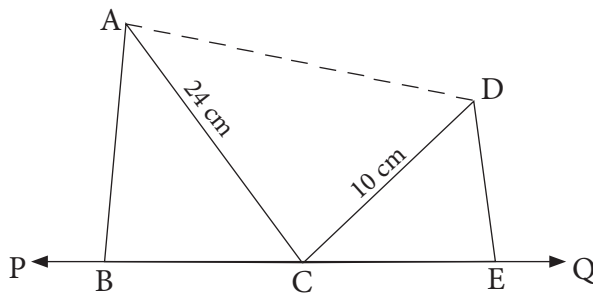
a. a, if $b = 7$ cm and $c = 25$ cm

$a =$ _____

b. c, if $b = 3$ cm and $a = 4$ cm

$c =$ _____

Q6. **In the given figure $\angle$ACD is twice of $\angle$ACB. $\angle$ACB= $\angle$DCE. If AC = 24 cm, CD = 10 cm, find the measure of AD.(Hint: Find the measure of $\angle$ACD.)**

Answer: AD = _____

Q7. **Karim's father put up a slanting slide from the rooftop to the balcony. If the length of the slide is 25 m and distance from the wall to the base of the slide is 20 m, find the height of the wall.**

Answer: _____

Q8. **State True or False:**

a.   The exterior angle of a triangle is equal to the sum of any two opposite interior angles.   _____

b.   In a triangle, if all the angles are acute, then it is an acute-angled triangle.   _____

c.   In a triangle, if all the angles are obtuse, then it is an obtuse-angled triangle.   _____

d. The sides of a right-angled triangle are 10 cm, 11 cm and 12 cm.   _____

Q9. Choose the correct option and fill in the blanks:

a. A triangle having sides 20 cm, 15 cm and 25 cm is _____.
    (i) acute-angled triangle   (ii) right-angled triangle

b. An altitude of a triangle divides it into two _____.
    (i) right-angled triangles   (ii) obtuse-angled triangle

c. A median divides the opposite side of the vertex in the ratio _____.
    (i) 1 : 2   (ii) 1 : 1

d. Sum of any two sides of a triangle is _____ than the third side.
    (i) smaller   (ii) greater

Q10. The sides of a triangle are in the ratio 3 : 4 : 5. If the longest side is 10 cm long, find the measure of the other two sides. Identify the type of triangle formed:

(i) On the basis of the measure of its sides

(ii) On the basis of the measure of its angles

Measure of the other two sides   = _____, _____
Type of triangle on the basis of sides   : _____
Type of triangle on the basis of angles   : _____

Answers

1.

    Let $\angle ABC = x$, then $\angle ACB = x$.

    $\angle ACP = 180° - x$; $\angle ABQ = 180° - x$

    So, $\angle ACP = \angle ABQ$

2. Jyoti is correct.

    $21° + 67° + 82° = 170°$, but sum of all the angles in a triangle should be equal to $180°$.

3. $x = 20°$; $y = 70°$; $z = 20°$

4. $30°$, $120°$, Obtuse-angled triangle

5. a. 24 cm; b. 5 cm

6. AD = 26 cm

7. 15 m

8. a. False; b. True; c. False; d. False

9. a. (ii); b. (i); c. (ii); d. (ii)

10. 6 cm, 8 cm; Scalene triangle; Right-angled triangle