Angle Sum Property of a Triangle

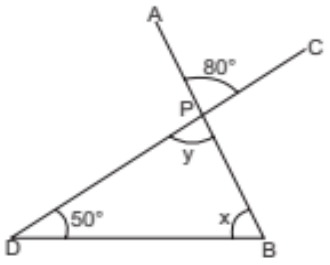
1. **Can a triangle have:**
   A. more than one acute angle?
   B. more than one obtuse angle?
   C. more than one right angle?
   D. an acute angle and a right angle?
   E. an obtuse angle and a right angle?
   F. all angles more than 60°?
2. **Find the measures of all the angles of an equilateral triangle.**
3. **The vertical angle of an isosceles triangle of 75°. Find the base angles.**
4. **In ΔABC, if ∠A = ∠B and ∠C = 3 ∠B, find all the angles.**
5. **If the angles of a triangle are in the ratio of 2: 3: 4, find the angles.**
6. **In ΔABC, the exterior angle ACD is 110°.Find the measure of ∠BAC, if ∠ABC = 65°.**
7. **The two angles of a triangle are 40° and 80°. Find the third angle.**
8. **In an isosceles triangle ABC, AB =AC and ∠A = 50°. If BO and CO are the bisectors of ∠B and ∠C respectively, find ∠BOC.**
9. **The exterior angle and one interior opposite angle of each triangle are given here respectively. Find the other interior opposite angle and the third angle of each triangle:**
   A. 120°, 45°
   B. 45°, 90°
   C. 58°, 20°
   D. 130°, 60°
10. **If one angle of a triangle is equal to the sum of the other two, show that the triangle is a right triangle.**

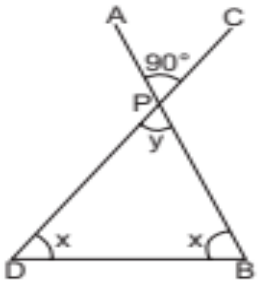
11. **One of the acute angles of a right triangle is 48°. Find the other acute angle.**

12. **One of the exterior angles of a triangle is 120° and the interior opposite angles are in the ratio 4: 2. Find the angles of the triangle.**

13. **One of the exterior angles of a triangle is 110° and the interior opposite angles are in the ratio of 3: 7. Find the angles of the triangle.**

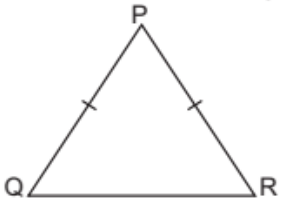
14. **Find the value of the unknown x and y in the following figures:**



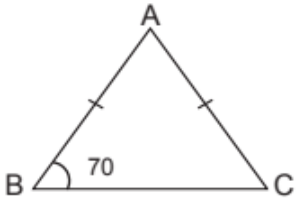


15. **The three angles of a triangle are in the ratio 2: 3: Find all the angles of the triangle.**

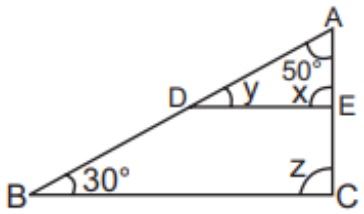
16. **In the given figure, ΔPQR is isosceles with PQ = PR. If ∠P is twice the measure of ∠Q, find the measure of all the angles of the triangle.**



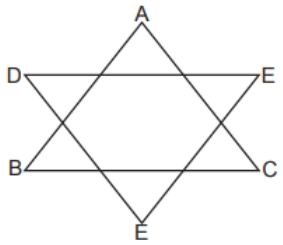
17. **In the given figure, ΔABC is isosceles with BC = AC. If ∠A = 70°, find ∠ABC and ∠ACB.**



18. In the given figure, DE || BC, ∠B = 30° and ∠A = 50°. Find the value of x, y and z



19. The given figure has been obtained by using two triangles.



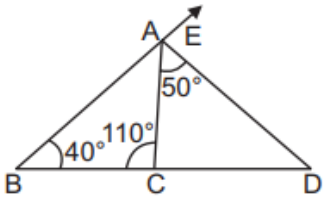
Prove that ∠A + ∠B + ∠C + ∠D + ∠E + ∠F = 4 right triangles.

20. In the given figure, find:

A. ∠ACD

B. ∠ADC

C. ∠DAE



21. In each of the following, the measure of three angles are given. State in which case the angles can possibly be those of a triangle.

A. 53°, 73°, 83°

B. 30°, 120°, 30°

C. 45°, 45°, 90°

D. 5°, 61°, 73°