Angle sum property of a triangle

A. Choose the correct answer:

1. The sum of the interior angles of any triangle is

- a) 360° b) 90°
- c) 180° d) 270°

2. If two angles of a triangle are 50° and 60°, the third angle is

- a) 70° b) 60°
- c) 90° d) 80°

3. A triangle has angles 90°, 45°, and 45°. What type of triangle is this?

- a) Scalene b) Equilateral
- c) Right-angled d) Obtuse

4. Which of the following sets of angles can form a triangle?

- a) 60°, 60°, 60° b) 30°, 60°, 100°
- c) 90°, 60°, 40° d) 100°, 50°, 40°

5. If a triangle has angles x°, 2x°, and 3x°, the value of x is

a) 20°	b) 25'
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c) 30° d) 40°

B. Write the Missing Terms to Complete the Sentences:

1. The sum of the three interior angles of a triangle is always ______.

2. If two angles of a triangle are 80° and 40°, the third angle is ______.

3. An equilateral triangle has each angle equal to ______.

- 4. In a triangle, no angle can be ______ than the sum of the other two.
- 5. A triangle with angles 90°, 60°, and 30° satisfies the _____ property.

C. Mark each sentence with a True (\checkmark) or False (X):

- 1. The angle sum of a triangle is always equal to 180°.
- 2. A triangle can have all angles less than 60°.
- 3. In a triangle, the sum of two angles can be greater than the third angle. _____

- 4. A triangle cannot have more than one right angle.
- 5. If a triangle has angles 60°, 60°, and 60°, it is called a right triangle.

D. Figure out the answers to these questions:

- 1. Find the missing angle in a triangle where two angles are 65° and 75°.
- 2. In a triangle, one angle is 3 times another and the third is 60°. Find all the angles.
- 3. The angles of a triangle are in the ratio 2:3:4. Find the angles.
- 4. Draw a triangle ABC where angle $A = 40^{\circ}$, angle $B = 80^{\circ}$. Find angle C and classify the triangle.
- 5. Can a triangle have angles 100°, 50°, and 30°? Explain why or why not.

E. Challenge yourself with these questions:

- 1. The angles of a triangle are 2x, 3x, and 4x. Find the value of x and the angles.
- 2. One angle of a triangle is equal to the sum of the other two. Can it be a triangle? Why?
- 3. Construct a triangle with angles 50°, 60°, and 70°. Name and classify it.
- 4. Can a triangle have two obtuse angles? Justify your answer.
- 5. A triangle has one angle of 90°. The other two angles are equal. Find them?
- F. In the given figure, $\triangle PQR$ is isosceles with PQ = PR. If \angle P is twice the measure of \angle Q, find the measure of all the angles of the triangle.



G. In the given figure, $\triangle ABC$ is isosceles with BC = AC. If $\angle A$ = 70°, find $\angle ABC$ and $\angle ACB$.

