

Triangle Angle Sum

Geometry · Grade 5

★ Hard · 10 Questions

Solve each problem. Show your work in the space provided. Write your answer on the line.

1. Two angles of a triangle measure 47° and 63° . What type of triangle is this?

Answer: _____

2. In a right triangle, one acute angle is 27° . Find the other acute angle.

Answer: _____

3. Three angles meet at a point on one side of a straight line.
Two of them are 55° and 67° .
Find the third angle.

Answer: _____

4. An isosceles triangle has a 40° apex angle.
Find each base angle.

Answer: _____

5. Two angles are supplementary. One is four times the other. Find both.

Answer: _____

6. Two lines cross, forming four angles. One angle measures 73° .
Find each of the other three angles.

Answer: _____

7. An isosceles triangle has base angles of 75° each.
Find the apex angle.

Answer: _____

8. A right triangle has one acute angle that is 4 times the other.
Find both acute angles.

Answer: _____

9. Four angles at a point: 80° , 100° , 60° , and ____°.

Answer: _____

10. An angle and its supplement differ by 40° . Find both angles.

Answer: _____

Answer Key

Triangle Angle Sum — Hard

1. Acute triangle

Third angle = $180^\circ - 47^\circ - 63^\circ = 70^\circ$. All three angles ($47^\circ, 63^\circ, 70^\circ$) are less than $90^\circ \rightarrow$ acute triangle.

2. 63°

Right triangle has $90^\circ +$ two acute angles = 180° . Other acute = $90^\circ - 27^\circ = 63^\circ$.

3. 58°

Angles on a straight line sum to 180° . $180^\circ - 55^\circ - 67^\circ = 58^\circ$.

4. 70°

Base angles are equal. $180^\circ - 40^\circ = 140^\circ$. Each base = $140^\circ \div 2 = 70^\circ$.

5. 36° and 144°

$x + 4x = 180^\circ$. $5x = 180^\circ$. $x = 36^\circ$. Other = 144° .

6. $107^\circ, 73^\circ, 107^\circ$

Vertical angle = 73° . The two adjacent angles each form a straight line with 73° : $180^\circ - 73^\circ = 107^\circ$.

7. 30°

$180^\circ - 75^\circ - 75^\circ = 30^\circ$.

8. 18° and 72°

$x + 4x = 90^\circ$. $5x = 90^\circ$. $x = 18^\circ$. Other = 72° .

9. 120°

$360^\circ - 80^\circ - 100^\circ - 60^\circ = 120^\circ$.

10. 70° and 110°

$x + (x+40) = 180^\circ$. $2x = 140^\circ$. $x = 70^\circ$. Other = 110° .