

## Triangle Sum Theorem Worksheet Answer Key PDF

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### Part 1: Building a Foundation

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**What is the sum of the interior angles of any triangle?**

undefined. 90 degrees

**undefined. 180 degrees ✓**

undefined. 270 degrees

undefined. 360 degrees

The sum of the interior angles of any triangle is 180 degrees.

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undefined. 90 degrees

**undefined. 180 degrees ✓**

undefined. 270 degrees

undefined. 360 degrees

The sum of the interior angles of any triangle is 180 degrees.

**Which of the following are types of triangles based on their angles?**

**undefined. Equilateral ✓**

**undefined. Isosceles ✓**

**undefined. Scalene ✓**

**undefined. Right ✓**

The types of triangles based on their angles include equilateral, isosceles, scalene, and right triangles.

**Which of the following are types of triangles based on their angles?**

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undefined. Scalene ✓

undefined. Right ✓

The types of triangles based on their angles include equilateral, isosceles, scalene, and right.

**Explain the Triangle Sum Theorem in your own words.**

**The Triangle Sum Theorem states that the sum of the interior angles of a triangle is always 180 degrees.**

**Explain the Triangle Sum Theorem in your own words.**

**The Triangle Sum Theorem states that the sum of the interior angles of a triangle is always 180 degrees.**

**List the three types of triangles based on side lengths and provide one characteristic of each.**

1. Equilateral

**All sides are equal.**

2. Isosceles

**Two sides are equal.**

3. Scalene

**No sides are equal.**

The three types of triangles based on side lengths are equilateral (all sides equal), isosceles (two sides equal), and scalene (no sides equal).

**If a triangle has two angles measuring 45 degrees and 45 degrees, what type of triangle is it?**

undefined. Equilateral

**undefined. Isosceles ✓**

undefined. Scalene

undefined. Right

A triangle with two angles measuring 45 degrees is an isosceles triangle.

**If a triangle has two angles measuring 45 degrees and 45 degrees, what type of triangle is it?**

undefined. Equilateral

**undefined. Isosceles ✓**

undefined. Scalene

undefined. Right

This triangle is an isosceles triangle because it has two equal angles.

## Part 2: Comprehension and Application

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**Which statements are true about an equilateral triangle?**

**undefined. All sides are equal. ✓**

**undefined. All angles are 60 degrees. ✓**

undefined. It can have a right angle.

**undefined. It is a type of isosceles triangle. ✓**

True statements about an equilateral triangle include that all sides are equal and all angles are 60 degrees.

**Which statements are true about an equilateral triangle?**

**undefined. All sides are equal. ✓**

**undefined. All angles are 60 degrees. ✓**

undefined. It can have a right angle.

**undefined. It is a type of isosceles triangle. ✓**

An equilateral triangle has all sides equal and all angles measuring 60 degrees.

**Describe how the Triangle Sum Theorem can be used to find a missing angle in a triangle.**

**The Triangle Sum Theorem can be used to find a missing angle by subtractively determining the unknown angle from the total of 180 degrees.**

**Describe how the Triangle Sum Theorem can be used to find a missing angle in a triangle.**

The Triangle Sum Theorem can be used to find a missing angle by subtractively determining the third angle from the sum of the other two angles.

**A triangle has angles measuring 70 degrees and 50 degrees. What is the measure of the third angle?**

**undefined. 60 degrees ✓**

undefined. 70 degrees

undefined. 80 degrees

undefined. 90 degrees

The measure of the third angle is 60 degrees.

**A triangle has angles measuring 70 degrees and 50 degrees. What is the measure of the third angle?**

**undefined. 60 degrees ✓**

undefined. 70 degrees

undefined. 80 degrees

undefined. 90 degrees

The measure of the third angle is 60 degrees, calculated by subtractively determining it from 180 degrees.

**In a triangle, if one angle is twice the size of the smallest angle and the third angle is 10 degrees more than the smallest angle, which of the following could be the measures of the angles?**

**undefined. 30, 60, 90 ✓**

undefined. 40, 80, 60

undefined. 50, 100, 30

undefined. 20, 40, 120

The measures of the angles could be 30, 60, and 90 degrees.

**In a triangle, if one angle is twice the size of the smallest angle and the third angle is 10 degrees more than the smallest angle, which of the following could be the measures of the angles?**

**undefined. 30, 60, 90 ✓**

undefined. 40, 80, 60

undefined. 50, 100, 30

undefined. 20, 40, 120

The measures of the angles could be 30, 60, and 90 degrees, as they satisfy the conditions given.

**Solve for the missing angle in a triangle with angles measuring 85 degrees and 35 degrees. Show your work.**

**The missing angle is 60 degrees, calculated by subtractively determining it from 180 degrees.**

**Solve for the missing angle in a triangle with angles measuring 85 degrees and 35 degrees. Show your work.**

**The missing angle is 60 degrees, calculated by subtractively determining it from 180 degrees.**

### Part 3: Analysis, Evaluation, and Creation

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**Which of the following statements are correct about the exterior angle of a triangle?**

**undefined. It is equal to the sum of the two non-adjacent interior angles. ✓**

**undefined. It is always greater than any of the interior angles. ✓**

undefined. It is equal to the adjacent interior angle.

**undefined. It is always less than 180 degrees. ✓**

Correct statements about the exterior angle include that it is equal to the sum of the two non-adjacent interior angles and is always greater than any of the interior angles.

**Which of the following statements are correct about the exterior angle of a triangle?**

**undefined. It is equal to the sum of the two non-adjacent interior angles. ✓**

**undefined. It is always greater than any of the interior angles. ✓**

undefined. It is equal to the adjacent interior angle.

**undefined. It is always less than 180 degrees. ✓**

The exterior angle of a triangle is equal to the sum of the two non-adjacent interior angles and is always greater than any of the interior angles.

**Analyze the relationship between the interior and exterior angles of a triangle and explain how they are related.**

**The interior angles of a triangle and the exterior angles are related such that each exterior angle is equal to the sum of the two non-adjacent interior angles.**

**Analyze the relationship between the interior and exterior angles of a triangle and explain how they are related.**

**The interior angles of a triangle and the exterior angles are related such that each exterior angle is equal to the sum of the two non-adjacent interior angles.**

**Evaluate the following statements and select those that correctly describe the properties of triangles.**

undefined. The sum of the angles in a triangle can be more than 180 degrees.

**undefined. An equilateral triangle is also an isosceles triangle. ✓**

undefined. A triangle can have more than one obtuse angle.

**undefined. A right triangle can have two equal angles. ✓**

Correct statements include that an equilateral triangle is also an isosceles triangle and a right triangle can have two equal angles.

**Evaluate the following statements and select those that correctly describe the properties of triangles.**

undefined. The sum of the angles in a triangle can be more than 180 degrees.

**undefined. An equilateral triangle is also an isosceles triangle. ✓**

undefined. A triangle can have more than one obtuse angle.

**undefined. A right triangle can have two equal angles. ✓**

The correct statements are that an equilateral triangle is also an isosceles triangle, and a right triangle can have two equal angles.

**Create a real-world problem involving a triangle where you need to use the Triangle Sum Theorem to find a missing angle. Provide a solution to your problem.**

**A real-world problem could involve a triangular park where two angles are known, and the third needs to be calculated using the Triangle Sum Theorem.**

**Create a real-world problem involving a triangle where you need to use the Triangle Sum Theorem to find a missing angle. Provide a solution to your problem.**

**An example could involve a triangular park where two angles are known, and the third needs to be calculated using the Triangle Sum Theorem.**