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Triangle Sum Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

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

Hint: Think about the basic properties of triangles.

○ 90 degrees
○ **180 degrees** ✓
○ 270 degrees
○ 360 degrees

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

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

Hint: Think about the properties of triangles.

○ 90 degrees
○ **180 degrees** ✓
○ 270 degrees
○ 360 degrees

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

Which of the following are properties of an equilateral triangle? (Select all that apply)

Hint: Consider the characteristics that define an equilateral triangle.

☐ **All sides are equal** ✓
☐ **All angles are 60 degrees** ✓
☐ It has one right angle
☐ It has two equal sides

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

Which of the following are properties of an equilateral triangle? (Select all that apply)

Hint: Consider the characteristics of equilateral triangles.

☐ **All sides are equal ✓**
☐ **All angles are 60 degrees ✓**
☐ It has one right angle
☐ It has two equal sides

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

Explain in your own words what the Triangle Sum Theorem states.

Hint: Think about how the angles in a triangle relate to each other.

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

Explain in your own words what the Triangle Sum Theorem states.

Hint: Think about the relationship between the angles in a triangle.

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

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List the different types of triangles based on their angles.

Hint: Consider the classifications of triangles by their angles.

1. What are the types of triangles based on angles?

> Acute, Right, Obtuse

The different types of triangles based on their angles are acute, right, and obtuse triangles.

In a right triangle, what is the measure of the right angle?

Hint: Recall the definition of a right triangle.

○ 45 degrees
○ 60 degrees
○ **90 degrees** ✓
○ 120 degrees

In a right triangle, the measure of the right angle is 90 degrees.

In a right triangle, what is the measure of the right angle?

Hint: Recall the definition of a right angle.

○ 45 degrees
○ 60 degrees
○ **90 degrees** ✓
○ 120 degrees

The measure of the right angle in a right triangle is 90 degrees.

Part 2: Comprehension and Application

Which type of triangle has one angle greater than 90 degrees?

Hint: Think about the definitions of triangle types.

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○ Acute triangle
○ Right triangle
○ **Obtuse triangle** ✓
○ Equilateral triangle

❘ A triangle with one angle greater than 90 degrees is called an obtuse triangle.

Which type of triangle has one angle greater than 90 degrees?

Hint: Think about the classifications of triangles based on their angles.

○ Acute triangle
○ Right triangle
○ **Obtuse triangle** ✓
○ Equilateral triangle

❘ The type of triangle that has one angle greater than 90 degrees is called an obtuse triangle.

Which statements are true about an isosceles triangle? (Select all that apply)

Hint: Consider the properties of isosceles triangles.

☐ **It has two equal sides** ✓
☐ It has three equal angles
☐ **It can be a right triangle** ✓
☐ It always has an obtuse angle

❘ An isosceles triangle has two equal sides and can also be a right triangle.

Which statements are true about an isosceles triangle? (Select all that apply)

Hint: Consider the properties that define an isosceles triangle.

☐ **It has two equal sides** ✓
☐ It has three equal angles
☐ **It can be a right triangle** ✓
☐ It always has an obtuse angle

❘ An isosceles triangle has two equal sides and can also be a right triangle.

Describe how the exterior angle of a triangle relates to its interior angles.

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Hint: Think about the relationship between interior and exterior angles.

The exterior angle of a triangle is equal to the sum of the two non-adjacent interior angles.

Describe how the exterior angle of a triangle relates to its interior angles.

Hint: Think about the relationship between exterior and interior angles.

The exterior angle of a triangle is equal to the sum of the two non-adjacent interior angles.

If two angles of a triangle are 50 degrees and 60 degrees, what is the measure of the third angle?

Hint: Use the Triangle Sum Theorem to find the answer.

○ **70 degrees ✓**
○ 80 degrees
○ 90 degrees
○ 100 degrees

The measure of the third angle is 70 degrees, since 180 - (50 + 60) = 70.

If two angles of a triangle are 50 degrees and 60 degrees, what is the measure of the third angle?

Hint: Use the Triangle Sum Theorem to find the answer.

○ **70 degrees ✓**
○ 80 degrees
○ 90 degrees

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○ 100 degrees

| The measure of the third angle is 70 degrees.

A triangle has angles expressed as x, 2x, and 3x. Find the value of x and the measures of all three angles.

Hint: Set up an equation based on the Triangle Sum Theorem.

| **The value of x is 30 degrees, making the angles 30 degrees, 60 degrees, and 90 degrees.**

A triangle has angles expressed as x, 2x, and 3x. Find the value of x and the measures of all three angles.

Hint: Set up an equation based on the Triangle Sum Theorem.

| **The value of x is 30 degrees, making the angles 30 degrees, 60 degrees, and 90 degrees.**

Part 3: Analysis, Evaluation, and Creation

Analyze the following statements and select those that correctly describe a scalene triangle. (Select all that apply)

Hint: Consider the properties that define a scalene triangle.

☐ **All sides are different lengths ✓**

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☐ **All angles are different** ✓
☐ **It can have a right angle** ✓
☐ It has two equal sides

> A scalene triangle has all sides of different lengths and all angles different.

Analyze the following statements and select those that correctly describe a scalene triangle. (Select all that apply)

Hint: Consider the properties of scalene triangles.

☐ **All sides are different lengths** ✓
☐ **All angles are different** ✓
☐ **It can have a right angle** ✓
☐ It has two equal sides

> A scalene triangle has all sides of different lengths and all angles different.

Given a triangle with angles a, b, and c, where a = b + 10 and c = 2 b, analyze and find the measures of the angles.

Hint: Set up equations based on the relationships given.

> **The measures of the angles are a = 70 degrees, b = 60 degrees, and c = 120 degrees.**

Given a triangle with angles a, b, and c, where a = b + 10 and c = 2 b, analyze and find the measures of the angles.

Hint: Set up equations based on the relationships given.

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> **The measures of the angles can be found by solving the equations derived from the relationships.**

Which statement best evaluates the relationship between the interior and exterior angles of a triangle?

Hint: Think about how exterior angles are defined in relation to interior angles.

◯ The exterior angle is always greater than any interior angle
◯ **The exterior angle is equal to the sum of the two non-adjacent interior angles** ✓
◯ The exterior angle is always less than any interior angle
◯ The exterior angle is equal to the adjacent interior angle

> The exterior angle is equal to the sum of the two non-adjacent interior angles.

Which statement best evaluates the relationship between the interior and exterior angles of a triangle?

Hint: Think about the definitions of interior and exterior angles.

◯ The exterior angle is always greater than any interior angle
◯ **The exterior angle is equal to the sum of the two non-adjacent interior angles** ✓
◯ The exterior angle is always less than any interior angle
◯ The exterior angle is equal to the adjacent interior angle

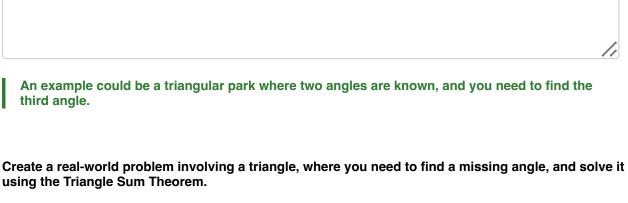> The exterior angle is equal to the sum of the two non-adjacent interior angles.

Create a real-world problem involving a triangle, where you need to find a missing angle, and solve it using the Triangle Sum Theorem.

Hint: Think about a scenario where angles are involved.

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> **An example could be a triangular park where two angles are known, and you need to find the third angle.**

Create a real-world problem involving a triangle, where you need to find a missing angle, and solve it using the Triangle Sum Theorem.

Hint: Think about a scenario where angles are involved.

> **Create a scenario involving a triangle and apply the Triangle Sum Theorem to find the missing angle.**

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