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Similar Triangle Worksheet Questions and Answers PDF

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Part 1: Building a Foundation

What is the primary condition for two triangles to be considered similar?

Hint: Think about the properties of angles and sides in triangles.

◯ A) They have the same area.
◯ B) They have the same perimeter.
◯ **C) Their corresponding angles are equal.** ✓
◯ D) Their corresponding sides are equal.

Two triangles are considered similar if their corresponding angles are equal.

Which of the following are criteria for triangle similarity? (Select all that apply)

Hint: Consider the different ways triangles can be compared.

☐ **A) AA (Angle-AngLE)** ✓
☐ **B) SAS (Side-AngLE-Side)** ✓
☐ **C) SSS (Side-Side-Side)** ✓
☐ **D) ASA (Angle-Side-AngLE)** ✓

The criteria for triangle similarity include AA, SAS, SSS, and ASA.

Explain in your own words what it means for two triangles to be similar.

Hint: Think about the relationships between angles and sides.

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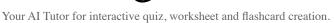Your AI Tutor for interactive quiz, worksheet and flashcard creation.

> **Two triangles are similar if they have the same shape but may differ in size, meaning their corresponding angles are equal and their sides are proportional.**

List the three criteria used to determine if two triangles are similar.

Hint: Recall the common criteria for triangle similarity.

1. Criterion 1

> AA

---

2. Criterion 2

> SAS

---

3. Criterion 3

> SSS

> The three criteria are AA, SAS, and SSS.

Part 2: Comprehension and Application

If triangle ABC is similar to triangle DEF, which of the following statements is true?

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Hint: Consider the properties of similar triangles.

○ **A) Angle A is equal to angle D. ✓**

○ B) Side AB is equal to side DE.

○ C) The perimeter of triangle ABC is equal to the perimeter of triangle DEF.

○ D) Triangle ABC is congruent to triangle DEF.

| If two triangles are similar, their corresponding angles are equal.

Which of the following statements are true about similar triangles? (Select all that apply)

Hint: Think about the properties of similar triangles.

☐ **A) They have equal corresponding angles. ✓**

☐ **B) Their corresponding sides are proportional. ✓**

☐ C) They always have the same orientation.

☐ **D) They can be different sizes. ✓**

| Similar triangles have equal corresponding angles and proportional sides, but they can be different sizes.

Triangle XYZ is similar to triangle PQR. If the length of side XY is 6 cm and the length of side PQ is 9 cm, what is the ratio of the sides of triangle XYZ to triangle PQR?

Hint: Use the lengths of the sides to find the ratio.

○ **A) 2:3 ✓**

○ B) 3:2

○ C) 1:2

○ D) 1:3

| The ratio of the sides of triangle XYZ to triangle PQR is 2:3.

A ladder leans against a wall forming a triangle with the ground. Explain how you could use similar triangles to find the height the ladder reaches on the wall.

Hint: Consider the relationships between the ladder, wall, and ground.

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> **You can use the properties of similar triangles to set up a proportion based on the lengths of the sides of the triangles formed by the ladder, wall, and ground.**

Part 3: Analysis, Evaluation, and Creation

In a pair of similar triangles, the sides of one triangle are 4, 6, and 8. If the longest side of the second triangle is 12, what is the length of the shortest side of the second triangle?

Hint: Use the properties of similar triangles to find the missing side.

○ **A) 6 ✓**
○ B) 8
○ C) 9
○ D) 10

> The length of the shortest side of the second triangle is 6.

Analyze how the SSS criterion can be used to determine if two triangles are similar, and provide an example.

Hint: Think about the relationship between the sides of the triangles.

> **The SSS criterion states that if the sides of two triangles are proportional, then the triangles are similar. For example, if one triangle has sides of 2, 4, and 6, and another has sides of 4, 8, and 12, they are similar.**

Two triangles are similar, and the ratio of their corresponding sides is 1:3. If the area of the smaller triangle is 10 square units, what is the area of the larger triangle?

Hint: Remember that the area ratio is the square of the side ratio.

○ A) 30 square units
○ B) 60 square units
○ **C) 90 square units ✓**

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◯ D) 120 square units

| The area of the larger triangle is 90 square units.

Design a real-world problem that involves similar triangles and explain how you would solve it using the properties of similar triangles.

Hint: Think about a scenario where triangles can be applied.

| **An example could be determining the height of a tree using a shadow. By measuring the shadow of the tree and a nearby object, you can set up a proportion to find the height of the tree.**

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