Segment Addition Postulate Worksheet Answer Key PDF

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Part 1: Building a Foundation

What does the Segment Addition Postulate state?

undefined. A) If a point B is on segment AC, then AB = BC.

undefined. B) If a point B is on segment AC, then AB + BC = AC. ✓

undefined. C) If a point B is on segment AC, then AC = AB - BC.

undefined. D) If a point B is on segment AC, then AB = AC + BC.

The Segment Addition Postulate states that if a point B is on segment AC, then AB + BC = AC.

Which of the following are true about the Segment Addition Postulate? (Select all that apply)

undefined. A) It can be used to find the length of a segment. ✓

undefined. B) It applies only to segments on a straight line. ✓

undefined. C) It is a principle used in algebra.

undefined. D) It is useful in geometric proofs. ✓

The Segment Addition Postulate can be used to find the length of a segment, applies only to segments on a straight line, and is useful in geometric proofs.

Explain in your own words what the Segment Addition Postulate is and why it is important in geometry.

The Segment Addition Postulate states that the total length of a segment can be found by adding the lengths of its parts, which is crucial for solving geometric problems.

List the components involved in the Segment Addition Postulate.

1. What are the points involved?

Points A, B, and C.

2. What segments are involved?

Segments AB, BC, and AC.

The components involved are points A, B, and C, and the segments AB, BC, and AC.

Part 2: Understanding and Interpretation

If AB = 5 cm and BC = 7 cm, what is the length of AC according to the Segment Addition Postulate?

undefined. A) 2 cm

undefined. B) 12 cm ✓

undefined. C) 35 cm

undefined. D) 0 cm

According to the Segment Addition Postulate, AC = AB + BC, so AC = 12 cm.

Which diagrams correctly illustrate the Segment Addition Postulate? (Select all that apply)

undefined. A) A line with points A, B, C such that AB + BC = AC. ✓

undefined. B) A triangle with sides labeled AB, BC, and AC.

undefined. C) A line with points A, B, C such that AB = AC + BC.

undefined. D) A line with points A, B, C such that AC = AB + BC. ✓

Diagrams A and D correctly illustrate the Segment Addition Postulate.

Describe a real-world scenario where the Segment Addition Postulate could be applied.

A real-world scenario could involve measuring the distance between two points with an intermediate point.

Part 3: Application and Analysis

If point B is between points A and C, and AB = 3x + 2, BC = 2x - 1, and AC = 21, what is the value of x?

undefined. A) 2

undefined. B) 3 ✓
undefined. C) 4
undefined. D) 5

By setting up the equation 3x + 2 + 2x - 1 = 21, we find that x = 3.

Given that AB = 8, BC = 5, and AC = 13, which of the following statements are true? (Select all that apply)

undefined. A) B is between A and C. ✓
undefined. B) The Segment Addition Postulate is satisfied. ✓
undefined. C) AB + BC does not equal AC.
undefined. D) The problem contains an error.

Statements A and B are true; B is between A and C, and the Segment Addition Postulate is satisfied.

Solve for the length of segment BC if AB = 10 and AC = 25 using the Segment Addition Postulate.

To find BC, use the equation 10 + BC = 25, which gives BC = 15.

If AB + BC = AC and AB = 4, BC = 6, what can be concluded about the position of point B?

undefined. A) B is not on segment AC.
undefined. B) B is exactly between A and C. ✓
undefined. C) B is closer to A than to C.
undefined. D) B is closer to C than to A.

Since AB + BC = AC holds true, point B is exactly between A and C.

Part 4: Evaluation and Creation

Which of the following best evaluates the importance of the Segment Addition Postulate in geometry?

undefined. A) It is only useful for simple problems.
undefined. B) It is a fundamental concept that aids in understanding more complex geometric principles. ✓
undefined. C) It is rarely used in practical applications.

undefined. D) It is only applicable in theoretical mathematics.

The Segment Addition Postulate is a fundamental concept that aids in understanding more complex geometric principles.

Create a problem involving the Segment Addition Postulate and identify the correct setup. (Select all that apply)

undefined. A) Given AB = 7, BC = x, AC = 15, find x. ✓

undefined. B) Given AB = x, BC = 5, AC = 12, find x. ✓

undefined. C) Given AB = 3, BC = 4, AC = x, find x. ✓

undefined. D) Given AB = 10, BC = 5, AC = 20, find x.

Options A, B, and C are valid setups for problems involving the Segment Addition Postulate.

Design a real-world problem that involves the Segment Addition Postulate and provide a solution.

A real-world problem could involve measuring the distance between two locations with an intermediate stop, and the solution would involve applying the Segment Addition Postulate.