Midpoint Distance Formula Worksheet Answer Key PDF

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Part 1: Building a Foundation

What is the formula for finding the midpoint between two points \((x_1, y_1)\) and \((x_2, y_2)\)?

undefined. (x_1 + x_2, y_1 + y_2)

undefined. (x_1 - x_2, y_1 - y_2)

undefined. (\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}) ✓

undefined. (\frac{x_1 - x_2}{2}, \frac{y_1 - y_2}{2})

The correct formula is \(\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)\).

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undefined. \(\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)\) ✓

undefined. \(\left(\frac{x_1 - x_2}{2}, \frac{y_1 - y_2}{2}\right)\)

The correct formula for finding the midpoint is \(\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)\).

Which of the following are components of the distance formula?

undefined. Subtraction of coordinates ✓

undefined. Division by two

undefined. Squaring differences ✓

undefined. Square root of the sum ✓

The distance formula involves subtraction of coordinates, squaring differences, and taking the square root of the sum.

Which of the following are components of the distance formula?

undefined. Subtraction of coordinates ✓
undefined. Division by two
undefined. Squaring differences ✓
undefined. Square root of the sum ✓

The components include squaring differences and taking the square root.

Explain in your own words why the midpoint formula is useful in geometry.

The midpoint formula is useful for finding the center point of a line segment, which can help in various geometric constructions and proofs.

Explain in your own words why the midpoint formula is useful in geometry.

The midpoint formula helps find the center point of a line segment, which is useful in various geometric constructions.

Part 2: comprehension and Application

If the midpoint of a line segment is \((3, 4)\) and one endpoint is \((1, 2)\), what is the other endpoint?

undefined. (5, 6) ✓
undefined. (4, 5)
undefined. (6, 8)
undefined. (7, 8)

The other endpoint can be found by rearranging the midpoint formula to solve for the unknown coordinates.

If the midpoint of a line segment is \((3, 4)\) and one endpoint is \((1, 2)\), what is the other endpoint?

undefined. (5, 6) ✓
undefined. (4, 5)
undefined. (6, 8)
undefined. (7, 8)

The other endpoint can be found by rearranging the midpoint formula.

Which scenarios can the distance formula be applied to?

undefined. Calculating the length of a diagonal in a rectangle ✓

undefined. Finding the height of a triangle

undefined. Measuring the distance between two cities on a map ✓

undefined. Determining the perimeter of a square

The distance formula can be applied in various scenarios such as measuring distances on maps or calculating lengths in geometry.

Which scenarios can the distance formula be applied to?

undefined. Calculating the length of a diagonal in a rectangle ✓

undefined. Finding the height of a triangle

undefined. Measuring the distance between two cities on a map ✓

undefined. Determining the perimeter of a square

The distance formula can be applied in various scenarios involving lengths and measurements.

Given points \(2, 3)\) and \(4, 7)\), what is the midpoint?

undefined. (3, 5)

undefined. (3, 6) ✓

undefined. (2, 5)

undefined. (4, 5)

The midpoint can be calculated by averaging the x-coordinates and y-coordinates of the given points.

Given points \(2, 3)\) and \(4, 7)\), what is the midpoint?

undefined. (3, 5) ✓

undefined. (3, 6)

undefined. (2, 5)

undefined. (4, 5)

The midpoint can be calculated using the average of the x and y coordinates.

Calculate the distance between the points \(1, 1)\) and \(4, 5)\) using the distance formula. Show your work.

The distance can be calculated using the formula and should show the steps taken to arrive at the answer.

Calculate the distance between the points \((1, 1)\) and \((4, 5)\) using the distance formula. Show your work.

The distance can be calculated using the formula and showing each step of the calculation.

Part 3: Analysis, Evaluation, and Creation

Which of the following statements is true about the midpoint and distance formulas?

undefined. Both formulas require subtraction of coordinates.

undefined. The midpoint formula involves division, while the distance formula involves a square root. ✓

undefined. Both formulas are used to find the length of a line segment.

undefined. The distance formula is only applicable in three-dimensional space.

The midpoint formula involves division, while the distance formula involves a square root.

Compare and contrast the midpoint and distance formulas in terms of their mathematical operations and applications.

Both formulas involve coordinate calculations, but the midpoint formula averages coordinates while the distance formula involves squaring and square roots.

Compare and contrast the midpoint and distance formulas in terms of their mathematical operations and applications.

Both formulas involve different operations but serve complementary purposes in geometry.

A student claims that the midpoint of \((2, 3)\) and \((6, 7)\) is \((4, 5)\). Is this correct?

undefined. Yes, the calculation is correct.

undefined. No, the correct midpoint is \((3, 5)\). ✓

undefined. No, the correct midpoint is \((4, 6)\).

undefined. No, the correct midpoint is \((5, 6)\).

The correct midpoint can be calculated, and the student's claim can be verified as incorrect.

A student claims that the midpoint of \((2, 3)\) and \((6, 7)\) is \((4, 5)\). Is this correct?

undefined. Yes, the calculation is correct.

undefined. No, the correct midpoint is \((3, 5)\). ✓

undefined. No, the correct midpoint is \((4, 6)\).

undefined. No, the correct midpoint is \((5, 6)\).

The correct midpoint can be calculated to confirm or refute the student's claim.