

Part I: Concepts & Vocabulary

Instructions: Fill in the blanks using the appropriate formulas or definitions.

1. The distance between two points on a 1D number line is the absolute difference between their coordinates: $d = \underline{\hspace{2cm}}$
2. Distance is always $\underline{\hspace{2cm}}$ (non-negative / negative).
3. The 1D Midpoint formula to find the center point between a and b is: $M = \underline{\hspace{2cm}}$
4. The 2D Distance Formula is derived directly from the $\underline{\hspace{2cm}}$ Theorem.

Part II: Practice Problems

Section 1: Distance on a Number Line (1D)

1. Find the distance d between point A = -6 and point B = 8 on a number line.

Workspace:

Answer: $d = \underline{\hspace{2cm}}$ units

2. Point P is at -11 and Point Q is at -3 on a number line. Calculate the distance between P and Q.

Workspace:

Answer: $d = \underline{\hspace{2cm}}$ units

Section 2: The Midpoint Formula (1D & 2D)

3. Find the midpoint M on a number line between coordinates $a = -12$ and $b = 4$.

Workspace:

Answer: $M = \underline{\hspace{2cm}}$

4. Find the midpoint M of the line segment connecting the points C(-4, 6) and D(8, -2).

Workspace:

Answer: $M = (\underline{\hspace{1cm}}, \underline{\hspace{1cm}})$

Section 3: 2D Distance Formula

5. Calculate the exact distance between the points P(2, 3) and Q(6, 11) in a 2D coordinate plane.

Workspace:

Answer: $d = \underline{\hspace{2cm}}$ units

6. Calculate the distance between R(-2, -1) and S(4, 7).

Workspace:

Answer: $d = \underline{\hspace{2cm}}$ units