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 = _____
2. Distance is always _____ (non-negative / negative).
3. The 1D Midpoint formula to find the center point between a and b is: M = _____
4. The 2D Distance Formula is derived directly from the _____ 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 = _____ 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 = _____ 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 = _____
4. **Find the midpoint M of the line segment connecting the points C(-4, 6) and D(8, -2).**
   Workspace:

   Answer: M = (_____ , _____)

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 = _____ units
6. **Calculate the distance between R(-2, -1) and S(4, 7).**
   Workspace:

   Answer: d = _____ units