

$$\boxed{} = p$$

Distance Formula

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$$\boxed{} = m$$

Midpoint Formula

IMPORTANT POINTS:

- ❖ Distance between TWO points
- ❖ What is XY ?
- ❖ What is the measure of of XY ?
- ❖ What is the length of XY ?
- ❖ Answer will be a POSITIVE number (NOT A COORDINATE)

FINDING THE DISTANCE:

1. IDENTIFY (x_1, y_1) and (x_2, y_2) .

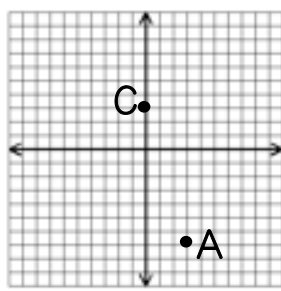
2. PLUG INTO FORMULA:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

3. PERFORM ORDER OF OPERATIONS UNDER THE RADICAL.

3. TAKE THE SQUARE ROOT OR LEAVE AS A RADICAL (EXACT VALUE).

ex 1: Find the distance between points A and C.



ex 2: Find the distance between points $(-1, 4)$ and $(-3, -4)$.

IMPORTANT POINTS:

- ❖ Midpoint between TWO points
- ❖ Exact halfway between 2 points
- ❖ Average of the x-coordinates and average of the y-coordinates
- ❖ Answer will be a *coordinate* (NOT a whole number)

FINDING THE MIDPOINT:

1. IDENTIFY (x_1, y_1) and (x_2, y_2) .

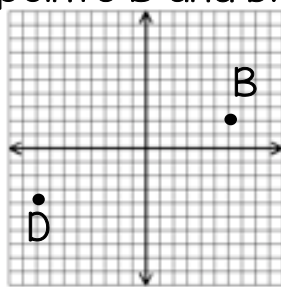
2. PLUG INTO FORMULA:

$$m = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

3. Add the terms.

4. Leave as a coordinate.

ex 3: Find the midpoint between points B and D.



ex 4: M is the midpoint of \overline{AB} . Find the coordinate of B if the coordinate of A is $(3, 7)$ and the midpoint is $(5, 10)$.