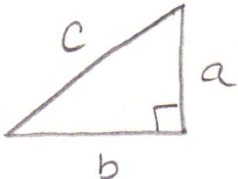
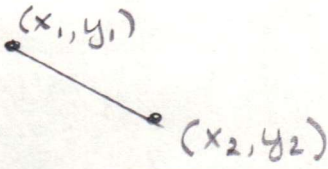
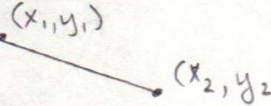
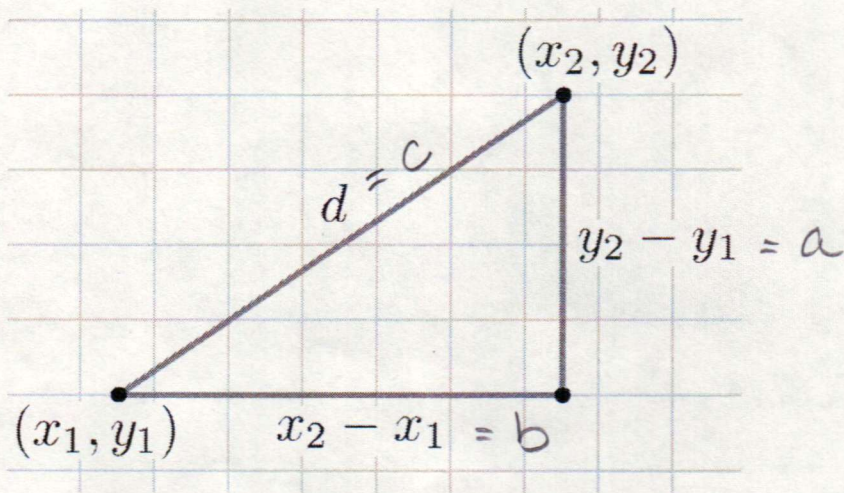


Notes 8.6 Geometry Constructions & Congruence

Word	Meaning/Notation	Example
Pythagorean Theorem	A formula used to find the length of a missing side of a right triangle	$a^2 + b^2 = c^2$ 
Distance Formula	Formula used to find the distance between any two points	$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ 
Slope	$m = \frac{\text{rise}}{\text{run}} = \frac{y_2 - y_1}{x_2 - x_1}$	 $\frac{y_2 - y_1}{x_2 - x_1} = m$



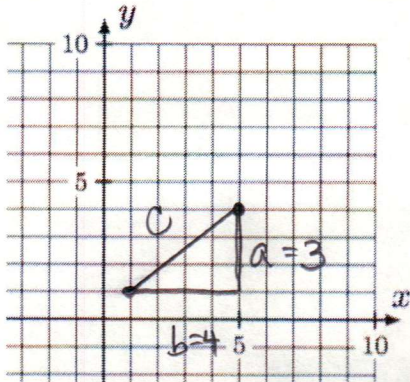
$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

\downarrow \downarrow \downarrow
 c b a

For each of the given sets of points, find the given distance using both Pythagorean Thm and the distance formula.

- a. Find the distance between (1, 1) and (5, 4)

Using Pythagorean Theorem



$$3^2 + 4^2 = c^2 \quad \sqrt{25} = \sqrt{c^2}$$

$$9 + 16 = c^2 \quad c = 5$$

Using Distance formula

$$d = \sqrt{(5-1)^2 + (4-1)^2}$$

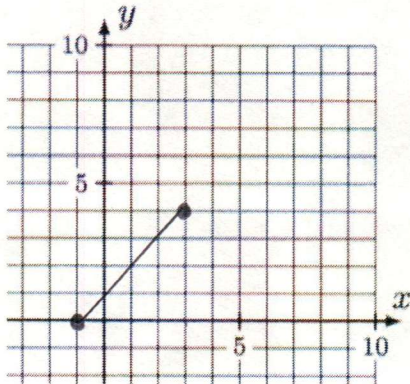
$$d = \sqrt{(4)^2 + (3)^2}$$

$$d = \sqrt{16 + 9}$$

$$d = \sqrt{25}$$

$$d = 5$$

- b. Find the distance between (-1, 0) and (3, 4)



$$d = \sqrt{(3-(-1))^2 + (4-0)^2}$$

$$d = \sqrt{(4)^2 + (4)^2}$$

$$d = \sqrt{16 + 16}$$

$$d = \sqrt{32} \quad d \approx 5.66$$

- c. Find the distance between (-3, 2) and (1, -2)

