

BE - Geometry I | Wednesday 9-15-10

① $\frac{2x+3}{4} = \frac{x+2}{5}$

② Scale of map $\Rightarrow 1 \text{ in} = 24 \text{ mi}$
3 inches on map = x miles?

Proportions \Rightarrow cross-products are equal
 $\frac{a}{b} = \frac{c}{d} \therefore ab = bc$

① $\frac{2x+3}{4} = \frac{x+2}{5}$

$$5(2x+3) = 4(x+2)$$

$$10x+15 = 4x+8$$

$$6x = -7$$

$$\boxed{x = -\frac{7}{6}}$$

② $\frac{1}{24} = \frac{3}{x}$

$$\boxed{x = 72 \text{ mi}}$$

$$\textcircled{24} \quad x + 3y = 6 \longrightarrow x = \textcircled{6 - 3y}$$

$$4x - 2y = -32$$

$$4(6 - 3y) - 2y = -32$$

$$24 - 12y - 2y = -32$$

$$-14y = -32 - 24$$

$$y = \frac{-56}{-14} = 4$$

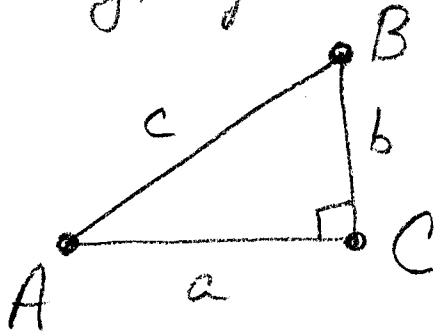
$$\therefore x = 6 - 3y$$

$$x = 6 - 3(4)$$

$$x = -6$$

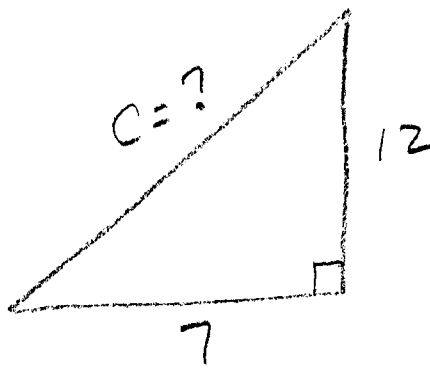
$$\boxed{(-6, 4)}$$

Pythagorean Theorem



$$c^2 = a^2 + b^2$$

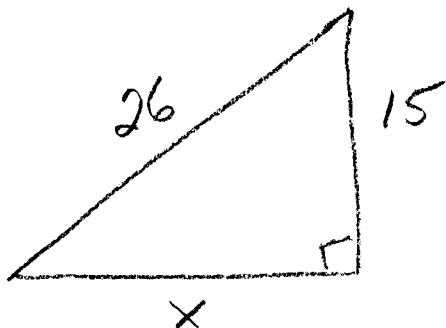
(EX)



$$c^2 = 12^2 + 7^2$$

$$c = \sqrt{144 + 49} = \boxed{\sqrt{193}} \approx 13.9 \text{ units}$$

(EX)



$$26^2 = x^2 + 15^2$$

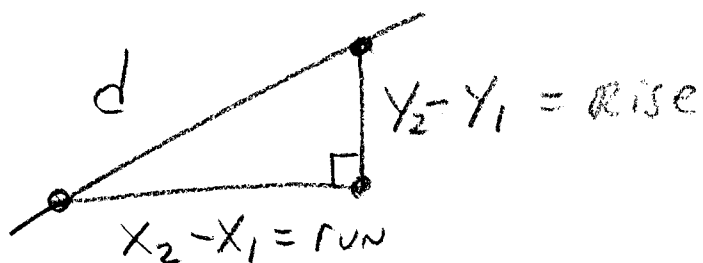
$$676 = x^2 + 225$$

$$451 = x^2$$

$$\boxed{\sqrt{451} = x}$$

$$x \approx 21.2 \text{ units}$$

Find distance between 2 points
 $(X_1, Y_1), (X_2, Y_2)$



$$d^2 = (X_2 - X_1)^2 + (Y_2 - Y_1)^2$$

$$d = \sqrt{(X_2 - X_1)^2 + (Y_2 - Y_1)^2}$$

Ex Find d : $(-3, -8), (4, 2)$

$$d = \sqrt{(4+3)^2 + (2+8)^2}$$

$$d = \sqrt{49 + 100}$$

$$d = \sqrt{149} \quad \text{or} \quad d \approx 12.2 \text{ units}$$

Midpoint of Two Points
 $(x_1, y_1), (x_2, y_2)$

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

↑
↑
 AVG of AVG of
 X Y

Ex Midpoint of :
 $(-2, 3), (15, 12)$

$$= \left(\frac{15 + (-2)}{2}, \frac{3 + 12}{2} \right)$$

$$\boxed{\left(\frac{13}{2}, \frac{15}{2} \right)}$$

HW

- Study AHSGE Workbook