Warm up:

Solve.

1. $3x + 2 - 6x + 5 = -8$

$-3x + 7 = -8$
$\quad -7 \quad -7$

$\dfrac{-3x}{-3} = \dfrac{-15}{-3}$ $x = 5$

2. $a^2 + 35 = 75$
$\quad -35 \quad -35$

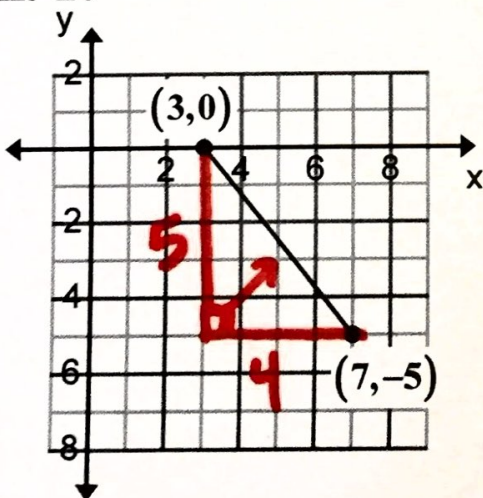$\sqrt{a^2} = \sqrt{40}$

$a = 2\sqrt{10} \approx 6.32$

3. $81 + 144 = c^2$

$\sqrt{225} = \sqrt{c^2}$

$c = 15$

Find the distance between each pair of points whose coordinates are given. Write your answers as simplified radicals and as decimals. Round to the nearest tenth if necessary.

Ex. 1:

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

$5^2 + 4^2 = c^2$

$25 + 16 = c^2$

$\sqrt{41} = \sqrt{c^2}$

$c = \sqrt{41} \approx 6.4 \text{ u}$

Find the distance between each pair of points whose coordinates are given. Write your answers as simplified radicals and as decimals. Round to the nearest tenth if necessary.
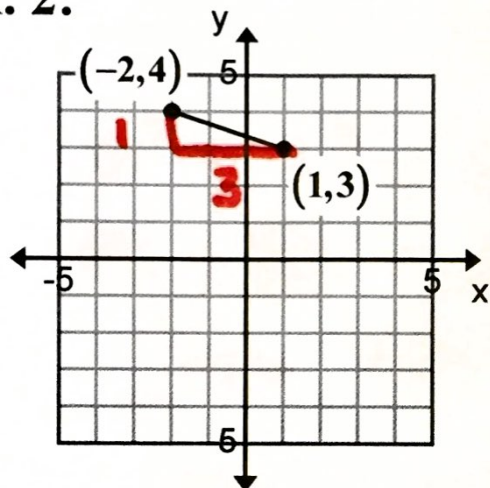
Ex. 2:

$$1^2 + 3^2 = c^2$$

$$1 + 9 = c^2$$

$$\sqrt{10} = \sqrt{c^2}$$

$$\sqrt{10} = c$$

$$c = \sqrt{10} \approx 3.2 \text{ u}$$

Graph each pair of ordered pairs. Then find the distance between the points. Write your answers as simplified radicals and as decimals. Round to the nearest tenth if necessary.
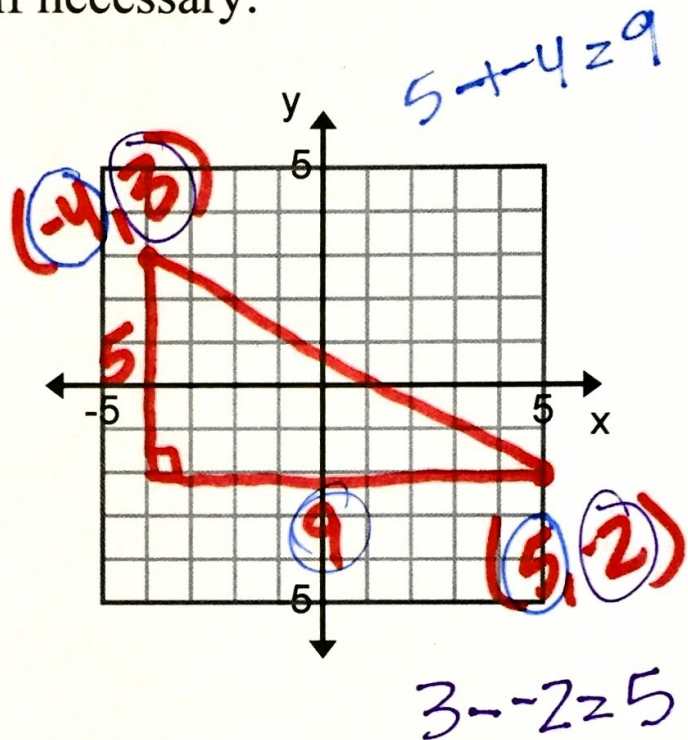
Ex. 3: $\overset{x\ y}{(-4,3)}$ and $(5,-2)$

$5 + -4 = 9$

$5^2 + 9^2 = c^2$

$25 + 81 = c^2$

$\sqrt{106} = \sqrt{c^2}$

$c = \sqrt{106} \approx 10.3\ u$

$3 - -2 = 5$

Distance Formula: $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$

$\overset{x\ y}{(-4,3)}$ $\overset{x\ y}{(5,-2)}$

Ex. 4: Use the distance formula to calculate the distance between the two points given in Example 3.

① Structure 1st

② Put X's in the 1st ( )

③ Put y's in the 2nd ( )

$\sqrt{(-4 - 5)^2 + (3 - +2)^2}$

$(-9)^2 \qquad\qquad (5)^2$

$81 \qquad + \qquad 25$

$\sqrt{106}$

$\sqrt{106} \approx 10.3\ u$

Use the distance formula to calculate the distance between the two points. Show your work.

Ex. 5: $(-5,3)$ and $(9,-8)$

$$\sqrt{(-5-9)^2 + (3--8)^2}$$

$$(-14)^2 + (11)^2$$

$$196 + 121$$

$$\sqrt{317}$$

$$\sqrt{317} \approx 17.8 \, u$$

Ex. 6: $(-20,12)$ and $(15,30)$

$$\sqrt{(-20-15)^2 + (12-30)^2}$$

$$\sqrt{(-35)^2 + (-18)^2}$$

$$\sqrt{1225 + 324}$$

$$\sqrt{1549}$$

$$\sqrt{1549} \approx 39.4 \, u$$