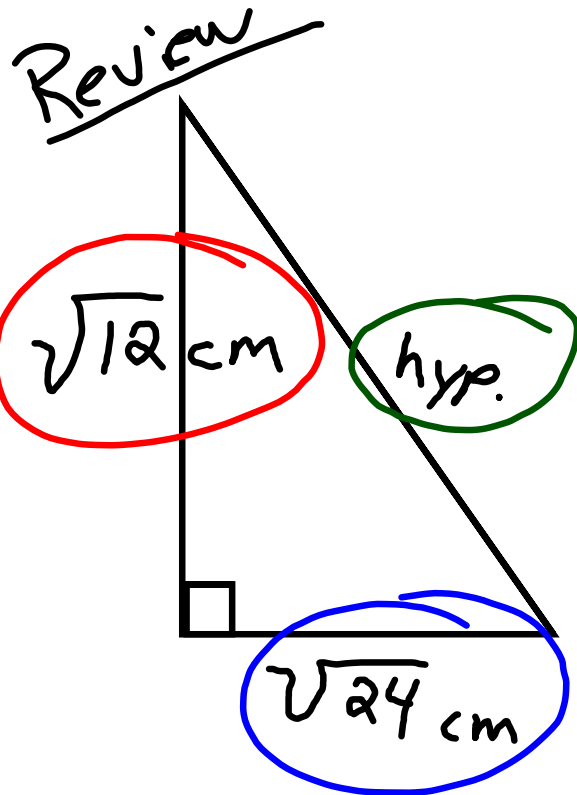


Distance Formula

May 23, 2007



$$(\text{leg}_1)^2 + (\text{leg}_2)^2 = (\text{hyp})^2$$

$$(\sqrt{24} \text{ cm})^2 + (\sqrt{12} \text{ cm})^2 = (\text{hyp})^2$$

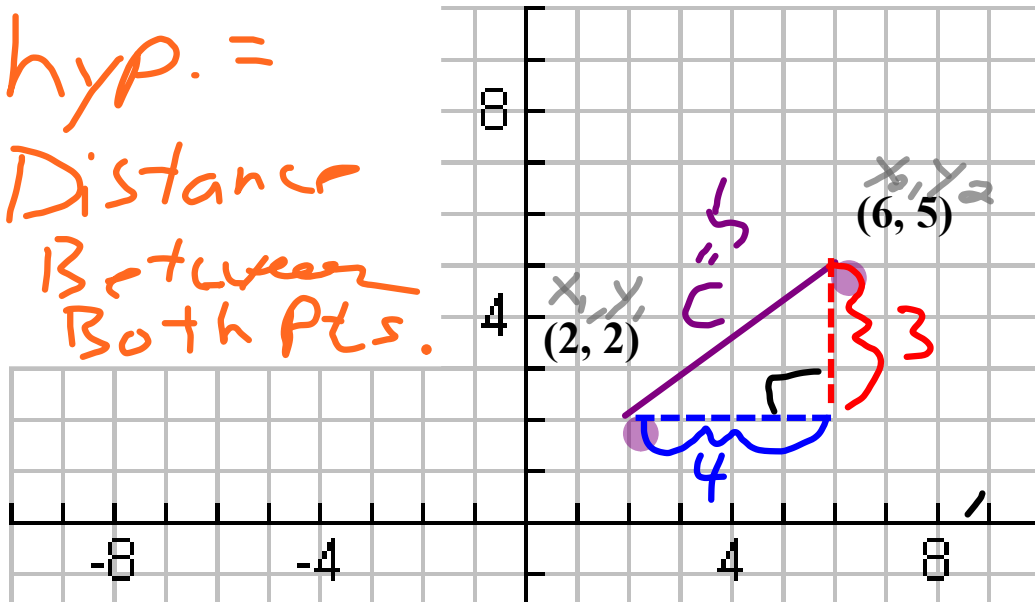
$$24 \text{ cm}^2 + 12 \text{ cm}^2 = \text{hyp}^2$$

$$+ \sqrt{36 \text{ cm}^2} = \sqrt{\text{hyp}^2}$$

$$\underline{\underline{6 \text{ cm} = \text{hyp.}}}$$

What is the distance between the points (2, 2) and (6, 5)

hyp. =
Distance
Between
Both Pts.



$$(leg_1)^2 + (leg_2)^2 = (hyp)^2$$

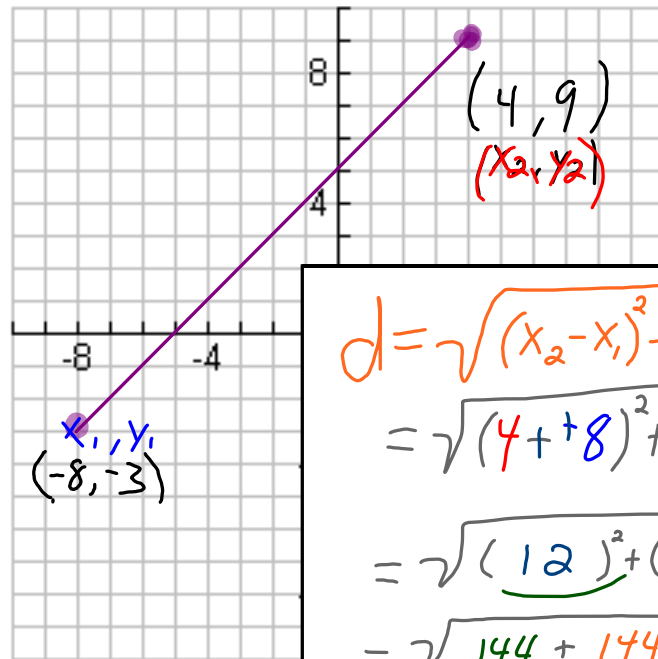
$$(4)^2 + (3)^2 = (c)^2$$

$$16 + 9 = c^2$$

$$\pm \sqrt{25} = \sqrt{c^2}$$

$$5 = c$$

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



$$\begin{aligned}
 d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\
 &= \sqrt{(4 - (-8))^2 + (9 - (-3))^2} \\
 &= \sqrt{(12)^2 + (12)^2} \\
 &= \sqrt{144 + 144}
 \end{aligned}$$

$$\begin{aligned}
 d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{288} \\
 &= \sqrt{(-)^2 + (-)^2} \\
 &= \sqrt{1^2 + 1^2} = \sqrt{144} \cdot \sqrt{2} \\
 &= \sqrt{\quad} + \quad = \underline{\underline{12\sqrt{2}}} \\
 &= \sqrt{\quad}
 \end{aligned}$$

find the distance Between the
Following Points

① $(x_1, y_1), (x_2, y_2)$
 $(2, 5), (0, 4)$

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

$$= \sqrt{(0 - 2)^2 + (4 - 5)^2}$$

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

$$= \sqrt{4 + 1}$$

$$= \sqrt{5}$$

$$\underline{\underline{\sqrt{5}}}$$

O.T.L.

③ $(8,0), (0,6)$

④ $(-4,2), (-1,3)$

$(-2, -2), (2, 8)$

④ $(-4, 2), (-1, 3)$

Determine if the three points make a right triangle

$(-4, 2), (-3, 2), (1, 6)$

$$\begin{aligned}d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(-3 - (-4))^2 + (2 - 2)^2} \\ &= \sqrt{(1)^2 + (0)^2} \\ &= \sqrt{1 + 0}\end{aligned}$$

$$= \sqrt{1}$$

$$\begin{aligned}d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(1 - (-3))^2 + (6 - 2)^2} \\ &= \sqrt{(4)^2 + (4)^2} \\ &= \sqrt{16 + 16}\end{aligned}$$

$$= \sqrt{32}$$

$$\begin{aligned}d &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(1 - (-4))^2 + (6 - 2)^2} \\ &= \sqrt{(5)^2 + (4)^2} \\ &= \sqrt{25 + 16}\end{aligned}$$

$$= \sqrt{41}$$

$$\begin{aligned}(\text{leg}_1)^2 + (\text{leg}_2)^2 &= (\text{hyp})^2 \\ (\sqrt{1})^2 + (\sqrt{32})^2 &\stackrel{?}{=} (\sqrt{41})^2 \\ 1 + 32 &\stackrel{?}{=} 41\end{aligned}$$

$$33 \neq 41$$

These 3 pts.
DO NOT make
a R.T.!

$(-3, -2), (3, 4), (-8, 3)$

O.T.L.

Pg. 733: 10, 13, 16, 20, 24