

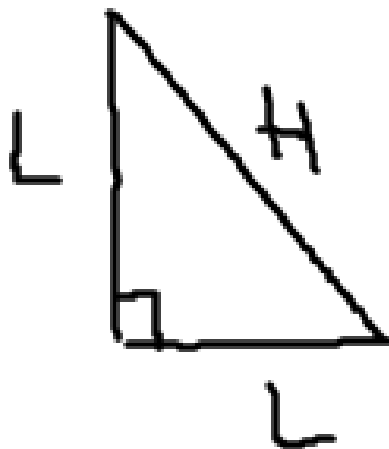
7 - 7

**Distance and the
Pythagorean Theorem
(Day One)**

Right Triangles

hypotenuse: side opposite the right angle

legs: other two sides



Pythagorean Theorem:

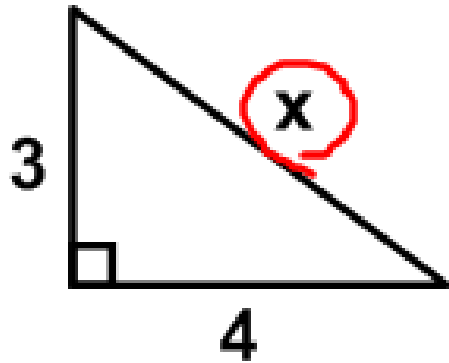
$$a^2 + b^2 = c^2$$

a, b : legs

c : hypotenuse

$$L^2 + L^2 = H^2$$

Ex: Solve for x.



$$3^2 + 4^2 = x^2$$

$$9 + 16 = x^2$$

$$\sqrt{25} = \sqrt{x^2}$$

$$5 = x$$

$$2^{\text{nd}} \ x^2$$

(✓)

Ex: Solve for x.



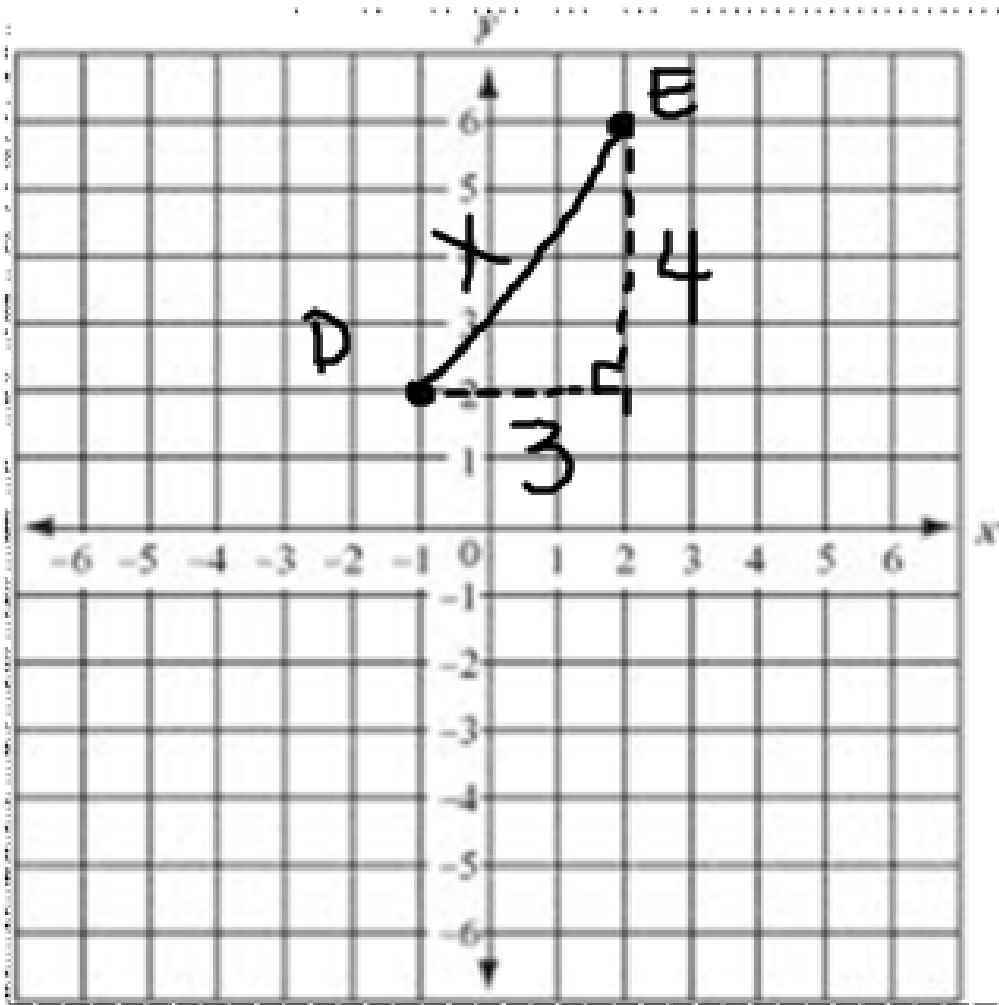
$$5^2 + x^2 = 13^2$$

$$\begin{array}{r} 25 + x^2 = 169 \\ -25 \\ \hline \end{array}$$

$$\sqrt{x^2} = \sqrt{144}$$

$$x = 12$$

Ex: Use the Pythagorean Theorem to find the distance between point D(-1, 2) and point E(2, 6).



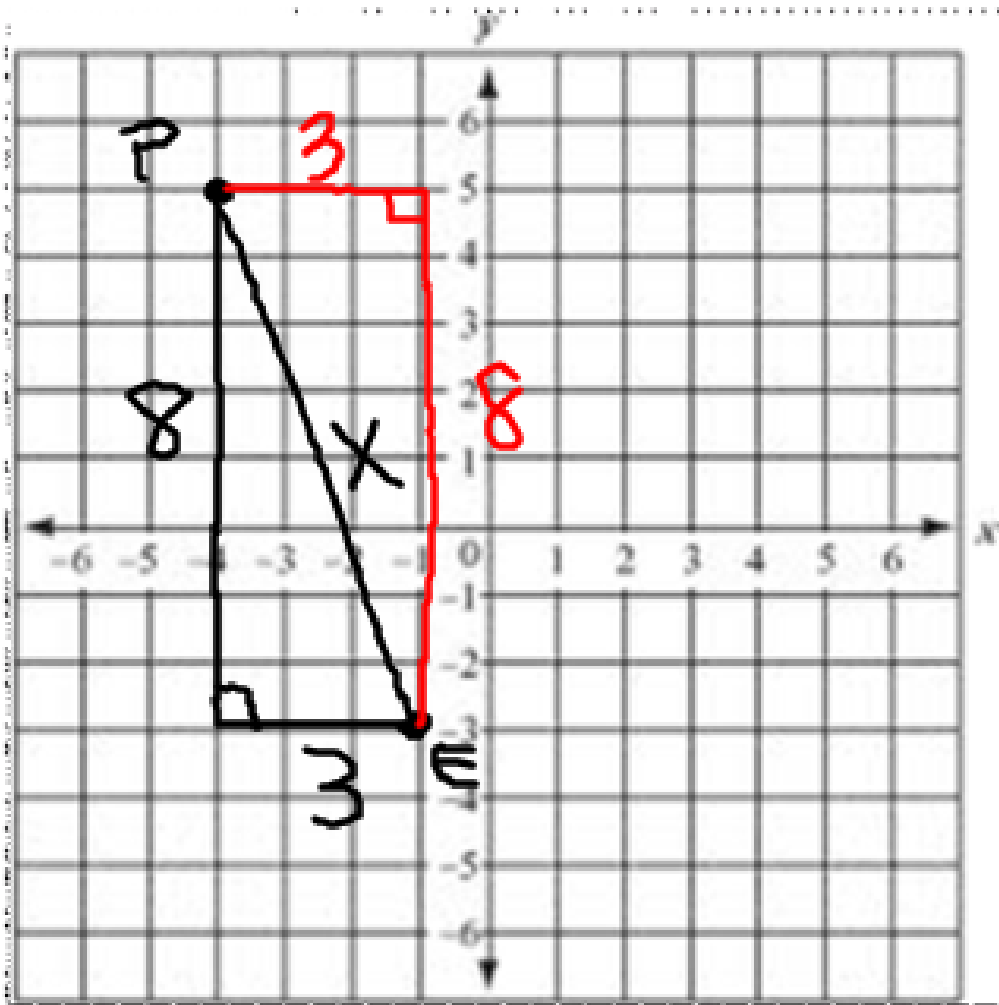
$$3^2 + 4^2 = x^2$$

$$9 + 16 = x^2$$

$$\sqrt{25} = \sqrt{x^2}$$

$$5 = x$$

Ex: Use the Pythagorean Theorem to find the distance between point P(-4, 5) and point E(-1, -3).



$$8^2 + 3^2 = x^2$$

$$64 + 9 = x^2$$

$$73 = x^2$$

$$8.5 \approx x$$



Homework:

p.336 #15 - 22