Hwk #8

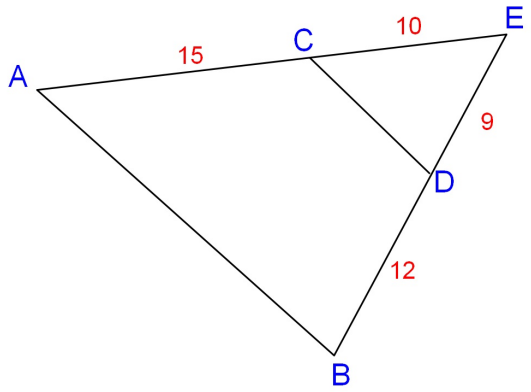
Sec 7-5

Pages 400-401

Problems 1, 2, 4, 5, 7, 9, 10, 12-14

Due Monay

Is $\overline{AB}$ parallel to $\overline{CD}$?



Simplify each square root.

1. $\sqrt{20}$

$\sqrt{4 \cdot 5}$

$2\sqrt{5}$

2. $\sqrt{96}$ → $\sqrt{4 \cdot 24}$

$\sqrt{16 \cdot 6}$

$= 4\sqrt{6}$

$2\sqrt{24}$

$4 \cdot 6$

$2 \cdot 2\sqrt{6}$

$4\sqrt{6}$

3. $\sqrt{150}$

$\sqrt{25 \cdot 6}$

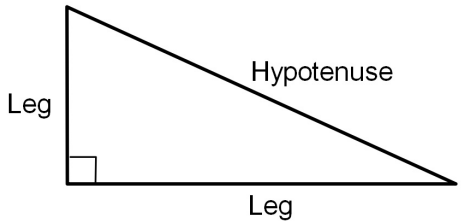
$5\sqrt{6}$

4. $\sqrt{63}$

$\sqrt{9 \cdot 7}$

$3\sqrt{7}$

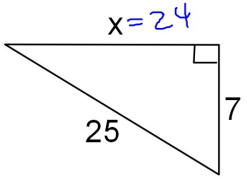
Sec 8-1: The Pythagorean Theorem and its Converse

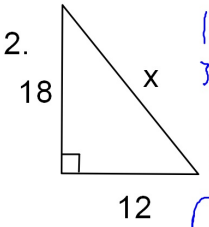


$a^2 + b^2 = c^2$

$Leg^2 + Leg^2 = Hypotenuse^2$

Find the length of each missing side. Give non-integer answers in simplified radical form.

1. 

2. 

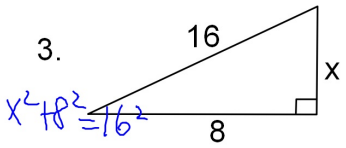
$18^2 + 12^2 = c^2$

$324 + 144 = c^2$

$\sqrt{468} = \sqrt{c^2}$

$\sqrt{36 \cdot 13} = c$

$6\sqrt{13} = c$

3. 

$x^2 + 8^2 = 16^2$

$\sqrt{16^2 - 8^2} = \sqrt{256 - 64} = \sqrt{192} = \sqrt{64 \cdot 3} = 8\sqrt{3}$

Pythagorean Triple:
3 natural numbers that make the Pythagorean Theorem true.

3 natural numbers that actually form a right triangle.

Most common Pythagorean Triple: x^2 x^2 x^2 3, 4, 5

Other common Pythagorean Triples:

$25 + 144 = 169$

5, 12, 13 8, 15, 17

Do these lengths form a right triangle?

11, 40, 41?

$11^2 + 40^2 \quad 41^2$

$121 \neq 1681$

12, 35, 37?

$\sqrt{12^2 + 35^2} = 37$

Theorem 8-2 **Converse of the Pythagorean Theorem**

If the square of the length of one side of a triangle is equal to the sum of the squares of the lengths of the other two sides, then the triangle is a right triangle.

Is this a Pythagorean Triple? 28, 45, 53

Yes

Find the third side of the right triangle. All sides are natural numbers.

21, 29, 20

a b

$\sqrt{a^2+b^2}$

$\sqrt{21^2+29^2} = 35.86$

29

X

21

$\sqrt{29^2-21^2}$

16, 63, 65

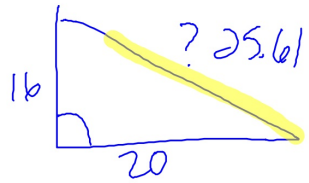
Do these lengths form a right triangle?

16, 20, 24 ?

No.

$16^2+20^2 \quad 24^2$

$656 \neq 576$



If it isn't a right triangle then it is either an acute triangle or an obtuse triangle. Which one?

Acute Triangle because side for Hypotenuse is too short for a right triangle.