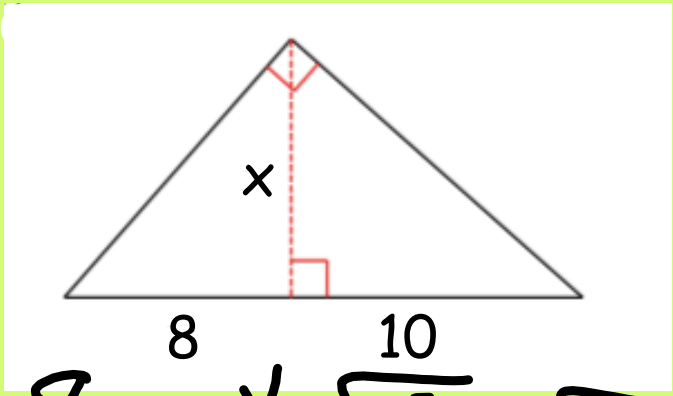
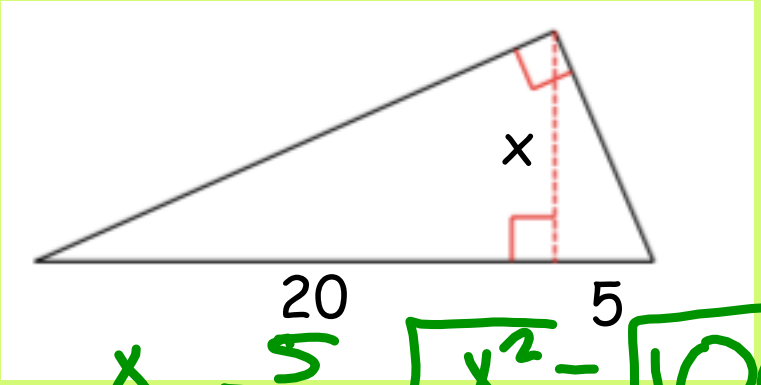
1/28/20 - Warm Up Problem

Write and solve a proportion to find x in each triangle.



$\frac{8}{x} = \frac{x}{10}$ $x^2 = 80$ $x = 8.9$



$\frac{x}{20} = \frac{5}{x}$ $x^2 = 100$ $x = 10$

Concept 19 - Simplifying Radicals

Goal: Write square roots in simplified radical form

When you evaluate the square root of a number, the result is sometimes an whole number and sometimes an irrational number.

PERFECT SQUARE NUMBERS – whole numbers whose square root is a whole number

1, 4, 9, 16, 25, 36, 49, 64, 81, 100 ...

There are two ways to record an irrational number that is the result of doing a square root: as a rounded decimal or in simplifed radical form.

Writing in Simplified Radical Form

1) Find a perfect square that divides into the radicand
   - find the LARGEST perfect square that divides in
2) Split the radicand into two factors
3) Simplify the perfect square factor and move the result to in front of the radical symbol

$\sqrt{8} = \sqrt{4 \cdot 2} = 2\sqrt{2}$

$\sqrt{27} = \sqrt{9 \cdot 3} = 3\sqrt{3}$

$\sqrt{32} = \sqrt{16 \cdot 2} = 4\sqrt{2}$

$\sqrt{400} = \sqrt{\cancel{400}} = 20$

Try it on your own...

Simplify these square roots in your notes.

1. $\sqrt{50}$

$\sqrt{25 \cdot 2}$

$5\sqrt{2}$

2. $\sqrt{300}$

$\sqrt{100 \cdot 3}$

$10\sqrt{3}$

3. $\sqrt{320}$

$\sqrt{64 \cdot 5}$

$8\sqrt{5}$

Assignment:

Concept 19 Worksheet
(1-12)

WRITING IN SIMPLIFIED RADICAL FORM

PERFECT SQUARE #S: 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169. . .

Put each radical in simplified form. Your answers should NOT be decimals.

1. $\sqrt{32}$ **2.** $\sqrt{75}$ **3.** $\sqrt{20}$ **4.** $\sqrt{18}$

$\sqrt{16 \cdot 2}$

$4\sqrt{2}$

5. $\sqrt{8}$ **6.** $\sqrt{28}$ **7.** $\sqrt{125}$ **8.** $\sqrt{84}$

9. $\sqrt{72}$ **10.** $\sqrt{99}$ **11.** $\sqrt{128}$ **12.** $\sqrt{98}$