Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per.\_\_\_\_\_\_\_

U12 CW #2*Simplifying Non-Perfect Squares*

In this section we will learn how to simplifying square roots of numbers that are not perfect squares

Think back to the previous lesson. Think-Pair-Write

\*What does it mean to simplify a square root of a non-perfect square?

\*What was the difference between the simplified version of these square roots as opposed to how they looked before they were simplified?

In the list below, circle the radicals that you thnk are simplified:

$$\sqrt{2} \sqrt{4} \sqrt{6} \sqrt{8} \sqrt{16} \sqrt{32} \sqrt{36} \sqrt{39} \sqrt{40} $$

List the first 15 perfect squares below:

**Strategy 1: Find the largest Perfect Square Factor**

1. Find the greatest perfect square that is a factor of the number inside the square root symbol.
2. Rewrite the number inside the square root symbol as the product of the greatest perfect square and the other factor.
3. Take the square root of the perfect square. Remember: When you take the square root of the perfect square, it is no longer inside the square root symbol.
4. Continue this process until you can no longer find a perfect square other than 1 that is a factor of the number inside the square root symbol.

**Examples:**

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

$$\sqrt{40}=\sqrt{4∙10}=\sqrt{4}∙\sqrt{10}=2\sqrt{10}$$

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

$$\sqrt{45}=\sqrt{9∙5}=\sqrt{9}∙\sqrt{5}=3\sqrt{5}$$

**Now you try… SHOW ALL WORK!!!!**

$\sqrt{50}$

$\sqrt{200}$

$\sqrt{72}$

$\sqrt{147}$

$\sqrt{128}$

$\sqrt{\frac{1}{4}}$

$-\sqrt{8}$

$$-5\sqrt{45}$$

$$10\sqrt{96}$$

$\sqrt{\frac{49}{36}}$

$-\sqrt{36}$

$$\sqrt{\frac{4}{25}}$$