

## DO NOW

which one is irrational?

a)  $\sqrt{25} = 5$

b)  $\sqrt{50}$

c)  $\sqrt{100} = 10$

d)  $\sqrt{400} = 20$

A background image showing a close-up of a pencil tip resting on a piece of graph paper. The pencil is sharpened and has a reddish-brown eraser. The graph paper has a grid pattern and some faint, handwritten numbers are visible in the upper right corner.

# SECTION 10.2

## DAY 1

### RATIONAL EXPONENTS

**SWBAT:**

- write expressions with exponents in radical form.
- Simplify expressions in radical or exponent form.

# Examples:

List perfect squares > 1:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

169, 196, 225

$$\sqrt{80}$$

$$\sqrt{16} \sqrt{5}$$

$$4\sqrt{5}$$

# Examples:

List perfect squares > 1:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

$$\sqrt{54}$$

Diagram illustrating the prime factorization of 54:

$\sqrt{54}$  is shown as  $\sqrt{9 \cdot 6}$ , where 9 and 6 are the factors under the square root.

The expression  $3\sqrt{6}$  is circled, representing the simplified form of the square root.

# Examples:

List perfect squares > 1:

1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144

$$\sqrt{180}$$

$\sqrt{36} \sqrt{5}$

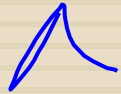
$6\sqrt{5}$

# Multiplying Radicals

□ Simplify

$$\sqrt{2} \cdot \sqrt{14}$$

$$\sqrt{28}$$



$$\sqrt{4} \sqrt{7}$$

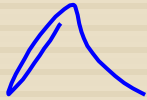
$$2\sqrt{7}$$

# Multiplying Radicals

□ Simplify

$$\sqrt{5} \cdot \sqrt{10}$$

$$\sqrt{50}$$



$$\sqrt{25} \sqrt{2}$$

$$5\sqrt{2}$$

# Multiplying Radicals

□ Simplify

$$\sqrt{6} \cdot \sqrt{8}$$

$$\begin{array}{c} \sqrt{48} \\ \swarrow \searrow \\ \sqrt{16} \sqrt{3} \\ \textcircled{4\sqrt{3}} \end{array}$$



# Multiplying Radicals

□ Simplify

$$\underline{4}\sqrt{\underline{2}} \cdot \underline{5}\sqrt{\underline{6}}$$

$$20\sqrt{12}$$

↓      ^

$$20\sqrt{4}\sqrt{3}$$

$$20 \cdot 2\sqrt{3}$$

$$\boxed{40\sqrt{3}}$$

$$-3\sqrt{3} \cdot \sqrt{6}$$

$$-3\sqrt{18}$$

|      ^

$$-3\sqrt{9}\sqrt{2}$$

$$-3 \cdot 3\sqrt{2}$$

$$\textcircled{-9\sqrt{2}}$$

# HOMEWORK



- **Section 10.2**
  - **#'s 18-26 evens**