

Today's Plan:

Learning Target (standard): I will use prime factorization trees to simplify radicals. I will then add or subtract radicals.

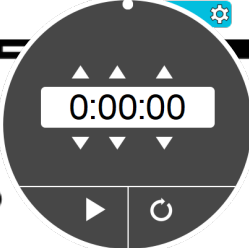
Students will: Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

Teacher will: Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

Assessment: Board work, homework check and homework assignment

Differentiation: Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

NAME _____



0:00:00

#158

BELL RINGER

- 1.) Find the x- and y-intercepts of the graph of the linear equation
 $5x - 10y = 20$
 $I_x: (4, 0)$ $5x = 20$ $I_y: (0, -2)$
 $-10y = 20$
- 2.) Is $(2, 0)$ a solution to the inequality $2x - 3y > 3$?
 $2(2) - 3(0) > 3$ $4 > 3$ **yes**
- 3.) Determine whether the function represents exponential growth or exponential decay. Identify the percent rate of change.
 $y = 4(1.45)^t$ growth: 45%

$.45 = 45\%$

decay: 1-%

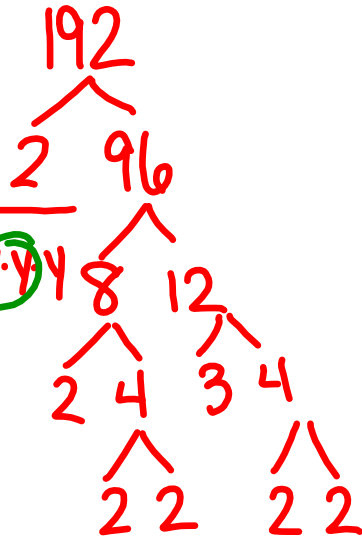
Simplify.

$$5\sqrt{192x^4y^5}$$

$$= 5\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y}$$

$$= 5 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot y \cdot y \sqrt{3 \cdot y}$$

$$= 40x^2y^2\sqrt{3y}$$



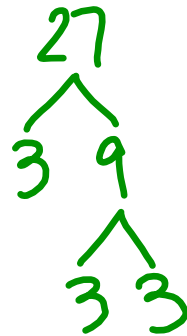
Simplify.

$$7\sqrt{27x^5y^3}$$

$$= 7\sqrt{3 \cdot 3 \cdot 3 \cdot x \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y}$$

$$= 7 \cdot 3 \cdot x \cdot x \cdot y \sqrt{3 \cdot x \cdot y}$$

$$= 21x^2y\sqrt{3xy}$$



Simplify.

$$-3\sqrt{99x^4y^3z^2}$$

$$= -3\sqrt{3 \cdot 3 \cdot 11 \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot z \cdot z}$$

$$= -3 \cdot 3 \cdot x \cdot x \cdot y \cdot z \sqrt{11 \cdot y}$$

$$= -9x^2yz\sqrt{11y}$$



Simplify.

$$5\sqrt{3} + 2\sqrt{75}$$

$$= 5\sqrt{3} + 2\sqrt{3 \cdot 25}$$

$$= 5\sqrt{3} + 2 \cdot 5\sqrt{3}$$

$$= \underline{5\sqrt{3}} + \underline{10\sqrt{3}}$$

$$= 15\sqrt{3}$$

Simplify.

$$3\sqrt{32} - 4\sqrt{63}$$

Factor trees for 32 and 63:

```

  32: 32 / 4 8
      4 / 2 2
      8 / 2 2
      2 / 2 2
  63: 63 / 7 9
      9 / 3 3
  
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$$= 3\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2} - 4\sqrt{3 \cdot 3 \cdot 7}$$

$$= 3 \cdot 2 \cdot 2 \sqrt{2} - 4 \cdot 3 \sqrt{7}$$

$$= 12\sqrt{2} - 12\sqrt{7}$$

Simplify.

$$7\sqrt{3a^2b^5} - 4\sqrt{6a^5b^6} + 2\sqrt{48a^2b^5} - 6\sqrt{54}$$

Factor trees for 48 and 54:

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  48: 48 / 4 12
      4 / 2 2
      12 / 3 4
      4 / 2 2
  54: 54 / 2 27
      27 / 3 9
      9 / 3 3
  
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$$= 7\sqrt{3 \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b} - 4\sqrt{6 \cdot a \cdot a \cdot a \cdot a \cdot b \cdot b \cdot b \cdot b} + 2\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot a \cdot a \cdot b \cdot b \cdot b} - 6\sqrt{2 \cdot 3 \cdot 3 \cdot 3}$$

$$= 7 \cdot a \cdot b \cdot b \sqrt{3 \cdot b} - 4 \cdot a \cdot a \cdot b \cdot b \sqrt{6 \cdot a} + 2 \cdot 2 \cdot 2 \cdot a \cdot b \cdot b \sqrt{3 \cdot b} - 6 \cdot 3 \sqrt{2 \cdot 3}$$

$$= 7ab^2\sqrt{3b} - 4a^2b^3\sqrt{6a} + 8ab^2\sqrt{3b} - 18\sqrt{6}$$

$$= 15ab^2\sqrt{3b} - 4a^2b^3\sqrt{6a} - 18\sqrt{6}$$

Simplify.

$$5\sqrt{28} + 2\sqrt{7} - \sqrt{14}$$

$\begin{array}{c} \wedge \\ 4 \ 7 \\ \wedge \\ 2 \ 2 \end{array}$

 $\begin{array}{c} \wedge \\ 2 \ 7 \end{array}$

$$= 5\sqrt{2 \cdot 2 \cdot 7} + 2\sqrt{7} - \sqrt{2 \cdot 7}$$

$$= 5 \cdot 2\sqrt{7} + 2\sqrt{7} - \sqrt{14}$$

$$= \underline{10\sqrt{7}} + \underline{2\sqrt{7}} - \sqrt{14}$$

$$= 12\sqrt{7} - \sqrt{14}$$

Simplify.

$$2\sqrt{32} + 7\sqrt{50} - 3\sqrt{48}$$

$\begin{array}{c} \wedge \\ 2 \ 16 \\ \wedge \\ 4 \ 4 \\ \wedge \\ 2 \ 2 \ 2 \ 2 \end{array}$

 $\begin{array}{c} \wedge \\ 2 \ 25 \\ \wedge \\ 5 \ 5 \end{array}$

 $\begin{array}{c} \wedge \\ 3 \ 16 \\ \wedge \\ 4 \ 4 \\ \wedge \\ 2 \ 2 \ 2 \ 2 \end{array}$

$$= 2\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2} + 7\sqrt{2 \cdot 5 \cdot 5} - 3\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3}$$

$$= 2 \cdot 2 \cdot 2 \sqrt{2} + 7 \cdot 5 \sqrt{2} - 3 \cdot 2 \cdot 2 \sqrt{3}$$

$$= \underline{8\sqrt{2}} + \underline{35\sqrt{2}} - 12\sqrt{3}$$

$$= 43\sqrt{2} - 12\sqrt{3}$$

Simplify.

$$2\sqrt{108} + 3\sqrt{75} + 4\sqrt{27}$$

$$\begin{array}{ccc} \begin{array}{cc} \wedge & \wedge \\ 9 & 12 \\ \wedge & \wedge \\ 3 & 3 & 3 & 4 \\ & & \wedge \\ & & 2 & 2 \end{array} & \begin{array}{cc} \wedge & \wedge \\ 3 & 25 \\ & \wedge \\ & 5 & 5 \end{array} & \begin{array}{cc} \wedge & \wedge \\ 3 & 9 \\ & \wedge \\ & 3 & 3 \end{array} \end{array}$$

$$= 2\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 3} + 3\sqrt{3 \cdot 5 \cdot 5} + 4\sqrt{3 \cdot 3 \cdot 3}$$

$$= 2 \cdot 2 \cdot 3\sqrt{3} + 3 \cdot 5\sqrt{3} + 4 \cdot 3\sqrt{3}$$

$$= 12\sqrt{3} + 15\sqrt{3} + 12\sqrt{3}$$

$$= 39\sqrt{3}$$

Simplify.

$$4\sqrt{48} - 6\sqrt{75} - 2\sqrt{108}$$

$$\begin{array}{ccc} \begin{array}{cc} \wedge & \wedge \\ 4 & 12 \\ \wedge & \wedge \\ 2 & 2 & 3 & 4 \\ & & \wedge \\ & & 2 & 2 \end{array} & \begin{array}{cc} \wedge & \wedge \\ 3 & 25 \\ & \wedge \\ & 5 & 5 \end{array} & \begin{array}{cc} \wedge & \wedge \\ 9 & 12 \\ \wedge & \wedge \\ 3 & 3 & 3 & 4 \\ & & \wedge \\ & & 2 & 2 \end{array} \end{array}$$

$$= 4\sqrt{2 \cdot 2 \cdot 2 \cdot 2 \cdot 3} - 6\sqrt{3 \cdot 5 \cdot 5} - 2\sqrt{2 \cdot 2 \cdot 3 \cdot 3 \cdot 3}$$

$$= 4 \cdot 2 \cdot 2\sqrt{3} - 6 \cdot 5\sqrt{3} - 2 \cdot 2 \cdot 3\sqrt{3}$$

$$= \underline{16\sqrt{3}} - \underline{30\sqrt{3}} - \underline{12\sqrt{3}}$$

$$= -26\sqrt{3}$$

Assignment:

Simplifying Radicals Review

#1-10