

Warm-Up

1/19/21

1. Simplify the Radical

Expression: $\sqrt{18x^7y^4}$

2. Multiply and simplify the

Radical Expression: $-3\sqrt{2} \cdot 7\sqrt{36}$

$$-21\sqrt{72}$$

$$-21\sqrt{36 \cdot 2}$$

↓
6

$$= -126\sqrt{2}$$

$$\textcircled{1} \sqrt{18x^7y^4} \div 2$$

$$\begin{array}{r|l} 18 & \\ \hline 1 & 18 \\ 2 & 9 \\ 3 & 6 \end{array}$$

$$\sqrt{2 \cdot 9 \cdot x^6 \cdot x \cdot y^4} \div 2$$



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

EOC Type Questions - Math Talks

3. The number of tennis shoes produced by a factory is given by the expression $115x + 350$ where the variable x represents the number of hours that the factory has been open. What is the meaning of the coefficient in this expression?

115x

- A. The factory produces 115 shoes every hour.
- B. The factory produces 350 shoes every hour.
- C. The factory started the day with 350 shoes.
- D. The factory started the day with 115 shoes.

4. A plumber charges a flat fee for each job, plus an hourly rate for the number of hours the job takes to complete. The total cost of the job, in dollars can be modeled by the expression $50 + 65x$. What does the constant term in the expression represent in this situation?

- A. The flat fee
- B. The number of jobs
- C. The cost per hour \$65
- D. The number of hours the job takes to complete

7. Which expression results in a rational number?

Given:

$L = \sqrt{2}$

$M = 3\sqrt{3}$

$N = \sqrt{16}$

$P = \sqrt{9}$

Handwritten notes in red ink:

- Next to $L = \sqrt{2}$: I
- Next to $M = 3\sqrt{3}$: I
- Next to $N = \sqrt{16}$: R
- Next to $P = \sqrt{9}$: R
- Large bracket: $\left\{ \begin{array}{l} 3.5 \cdot .75 = \frac{3}{5} \\ 3^{\frac{1}{2}} \cdot \sqrt{3} = 3 \end{array} \right.$
- Another large bracket: $\left\{ \begin{array}{l} 3.1415926535 \dots \\ \pi \quad \sqrt{7} \end{array} \right.$

- A. $L + M$
- B. $M + N$
- C. $N + P$
- D. $P + L$

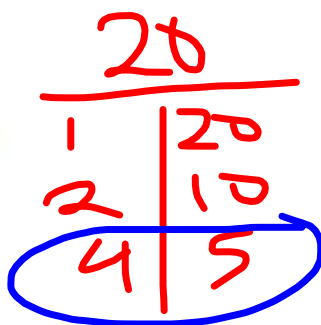
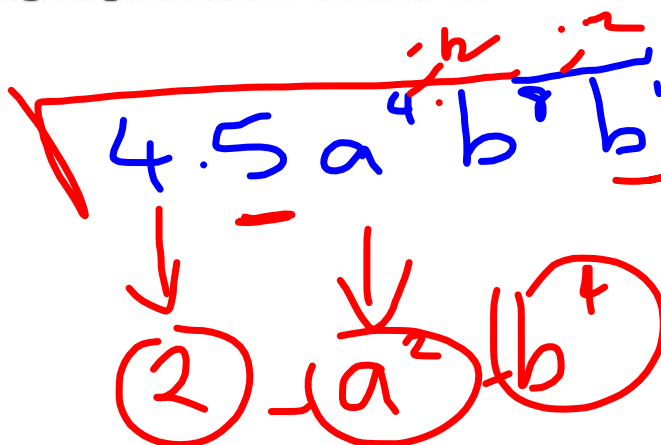
11. Simplify the following expression: $\sqrt{20a^4b^9}$

A. $2ab^4\sqrt{5a}$

B. $2a^2b^4\sqrt{5b}$

C. $5ab^2\sqrt{2b}$

D. $5a^2b^4\sqrt{5a}$



Essential Question 1/19/21

- How can I multiply, add, and subtract Radical Expressions?

Unit 1

Day 6 - Multiply, Add, & Subtract Radical Expressions

Multiply Radical Expressions

1. $\sqrt{3} \cdot 2\sqrt{6}$

$2\sqrt{18} = 2\sqrt{9 \cdot 2}$
 $= 6\sqrt{2}$

2. $4\sqrt{5} \cdot 2\sqrt{5}$
 $8\sqrt{25}$
 $= 40$

3. $-3\sqrt{2} \cdot 7\sqrt{36}$

$-126\sqrt{2}$

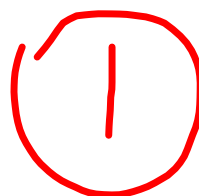
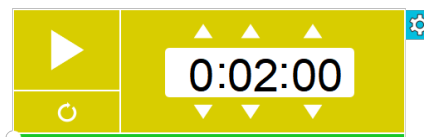
4. $3\sqrt{x} \cdot 2\sqrt{x^2}$

$6\sqrt{x^3}$
 $6\sqrt{x^2 \cdot x}$
 $6x\sqrt{x}$

5. $\sqrt{18a^2} \cdot 4\sqrt{3a^2}$

$4\sqrt{54a^4}$
 $4\sqrt{6 \cdot 9a^4}$
 $12a^2\sqrt{6}$

6. $\sqrt{50x} \cdot 4\sqrt{4x}$



$$\sqrt{a^3b} \cdot \sqrt{ab}$$

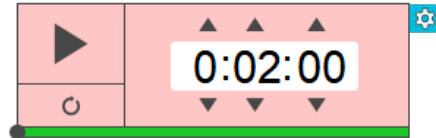
$$\sqrt{a^4b^2}$$

a^2b



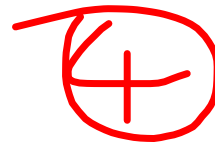
2

$$\sqrt{3x} \cdot \sqrt{15x}$$



③

$$-4\sqrt{2x^3} - \sqrt{8x}$$



$$-4\sqrt{2a^4b^3} - 2\sqrt{6a^3b^5}$$

Adding & Subtracting Radical Expressions

Practice - You do

e. $3\sqrt{3} + 6\sqrt{27}$

$$3\sqrt{3} + 6\sqrt{9 \cdot 3}$$

$$3\sqrt{3} + 18\sqrt{3}$$

$$3x + 18x = 21x$$

$$21\sqrt{3}$$

f. $3\sqrt{3} - 2\sqrt{12}$

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

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

$$3x - 4x = -1x$$

$$-1\sqrt{3}$$

$$1. \underline{6}\sqrt{6} - \underline{2}\sqrt{6}$$

$$6x - 2x = 4x$$

$$= \boxed{4\sqrt{6}}$$

$$2. \underline{-3}\sqrt{7} + \underline{4}\sqrt{7}$$

$$\boxed{-3x + 4x}$$

$$\rightarrow \boxed{1\sqrt{7}}$$

$$3. -10\sqrt{5} + 12\sqrt{5}$$

$$4. 2\sqrt{6} - 2\sqrt{24}$$

5. $2\sqrt{6} + 3\sqrt{54}$

$2\sqrt{6} + 3\sqrt{9 \cdot 6}$
 (Handwritten red annotations: an arrow points from the 9 to a circled 3, and another arrow points from the 6 to the radical sign.)

$2\sqrt{6} + 9\sqrt{6}$
 $= \boxed{11\sqrt{6}}$

6. $3\sqrt{8} + 3\sqrt{2}$

$3\sqrt{3 \cdot 4} + 3\sqrt{2}$
 (Handwritten blue annotations: an arrow points from the 4 to a circled 2.)

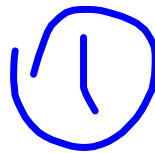
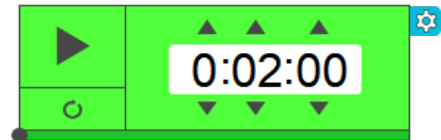
$6\sqrt{2} + 3\sqrt{2}$
 $= \boxed{9\sqrt{2}}$

7. $3\sqrt{18} - 2\sqrt{2}$

8. $-3\sqrt{20} - \sqrt{80} + 8\sqrt{3}$

9. $5\sqrt{2}(3\sqrt{10} - 2\sqrt{5})$

10. $\sqrt{45x^3} - \sqrt{20x^3}$



Simplify this radical

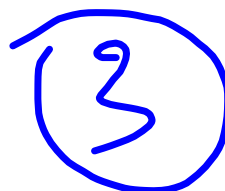
expression $\sqrt{14x}(3 - \sqrt{2x})$



②

Simplify this radical

expression $\sqrt{6n}(7n^3 + \sqrt{12n^4})$



Simplify this radical
expression

$$\sqrt{6x}(7x\sqrt{3x} + 12x^5)$$

HW due 1/27/21

**Deltamath:Radical Expressions -
Multiply, Add, Subtract, &
Simplify**