

1. What is the value of w in the equation:

$$\frac{1}{2}w + 7 = 2w - 2$$

1) 6

2) 2

3) 3.6

4) $3\frac{1}{3}$

2. If $n + 6$ represents a positive odd integer, the next larger positive odd integer is represented by

(1) $n + 4$

(3) $2(n + 6)$

(2) $n + 8$

(4) $n + 7$

$$n + 6 + 2 = n + 8 \quad \begin{matrix} 5 \\ +2 \\ \hline 7 \end{matrix}$$

3. Which expression represents an irrational number?

(1) $\frac{1}{4}$

(2) $\frac{0}{1}$

(3) $\sqrt{16} = \frac{4}{1}$

(4) $\sqrt{7} \approx 2.6457513$

a # that can not be written as a fraction

Learning Objective:

I will be able to multiplying and divide radicals.

Quiz 1
Friday



Aim: To students will be able to simplify and multiply radicals.

Notes:

Simplifying

Multiplying Radicals

Multiplying Radicals



(radical) times (radical)

Steps to Multiply Radicals

1. Multiply the coefficients (the numbers outside the radicals)
2. Multiply the radicands (the numbers inside the radicals)
3. Then simplify the remaining radicals.

Created for you by Ms. Nhoitsoubanh

Examples

1.) $\sqrt{5} \cdot \sqrt{35}$

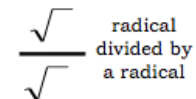
2.) $2\sqrt{8} \cdot 3\sqrt{7}$

Name: _____

Radicals

Dividing Radicals

Dividing Radicals



radical
divided by
a radical

Steps to Divide Radicals

1. Divide the coefficients (the numbers outside the radicals)
2. Divide the radicands if possible (the numbers inside the radicals)
3. Rationalize the denominator so that no radical remains in the denominator

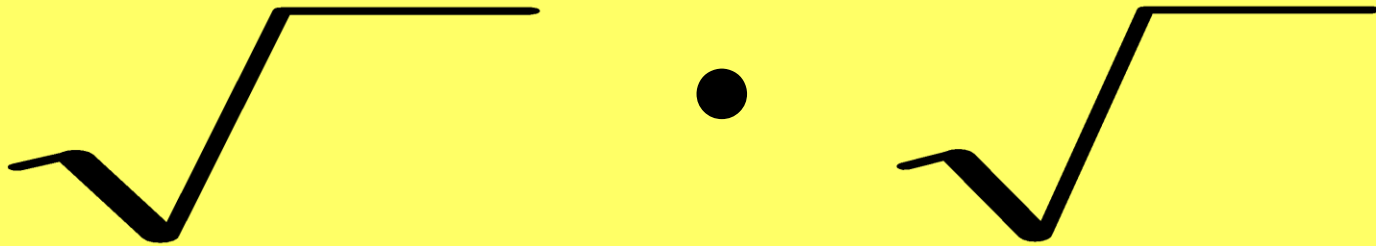
Examples

3.) $\frac{\sqrt{56}}{\sqrt{7}}$

4.) $\sqrt{\frac{7}{3}} \cdot \sqrt{\frac{3}{28}}$

Aim:

Multiplying Radicals



To multiply radicals:

1. multiply the coefficients
2. multiply the radicands
3. then simplify the remaining radicals.

Multiply and then simplify

$$1.) \sqrt{5} \bullet \sqrt{35}$$

$$= \sqrt{175}$$

$$= \sqrt{25 \bullet 7}$$

$$= 5\sqrt{7}$$

Steps:

1. Multiply the radicands
(the numbers inside the
radicals)

2. Simplify the radical

Multiply and then simplify

$$\begin{aligned} 2.) \quad & 2\sqrt{8} \cdot 3\sqrt{7} \\ & = 6\sqrt{56} \\ & = 6\sqrt{4 \cdot 14} \\ & = 6 \cdot 2\sqrt{14} \\ & = 12\sqrt{14} \end{aligned}$$

Steps:

1. Multiply the coefficients
(the numbers outside the radicals)
2. Multiply the radicands
(the numbers inside the radicals)
3. Simplify the radical

Learning Objective:


I will be able to multiplying and divide radicals.

Multiply and then simplify

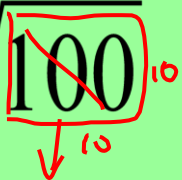
$$y = x^2$$

Steps:

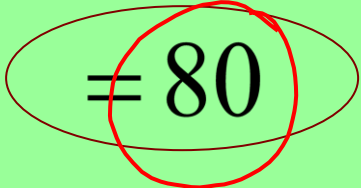
1. Multiply the coefficients
(the numbers outside the radicals)
2. Multiply the radicands
(the numbers inside the radicals)
3. Simplify the radical

 5.) $2\sqrt{5} \bullet 4\sqrt{20}$

$$= 8\sqrt{100}$$



$$= 8 \bullet 10$$



$$= 80$$

Learning Objective:
I will be able to multiply
and divide radicals.



Multiply and then simplify

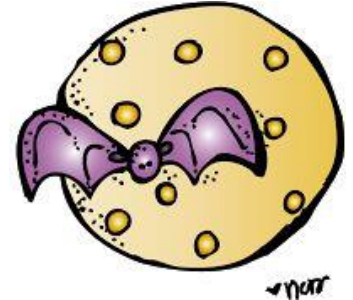
$$6) (2\sqrt{8})^2$$

$$(2\sqrt{8})(2\sqrt{8})$$

$$4\sqrt{64}$$

$$4 \cdot 8$$

$$32$$



$$* (\sqrt{8})(\sqrt{8})$$

$$(\sqrt{8})^2 = 8$$

$$(\sqrt{6})^2 = 6$$

Multiply and then simplify

$$8.) \quad (2\sqrt{x})^3$$

$$(2\sqrt{x})(2\sqrt{x})(2\sqrt{x})$$

$$8\sqrt{x^3}$$

$$8\sqrt{x^2 \cdot x}$$

$$8x\sqrt{x}$$

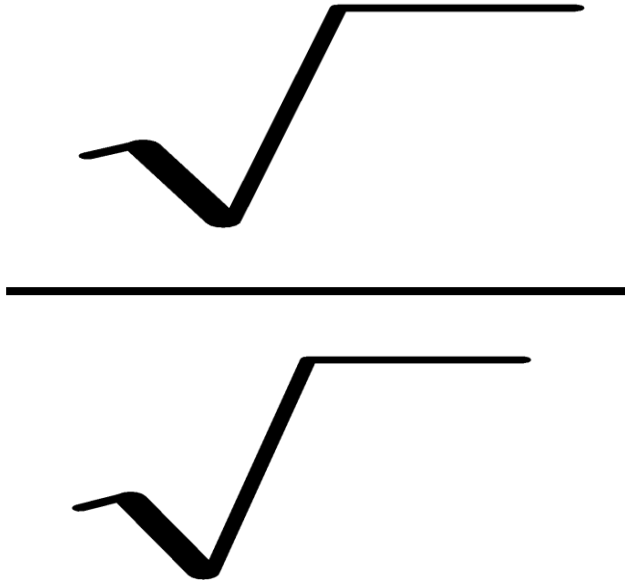
Learning Objective:

I will be able to multiplying and divide radicals.



Aim:

Dividing Radicals



To divide radicals:

1. divide the coefficients
2. divide the radicands if possible
3. rationalize the denominator so that no radical remains in the denominator

Divide and simplify.

$$3.) \frac{\sqrt{56}}{\sqrt{7}} = \sqrt{8}$$

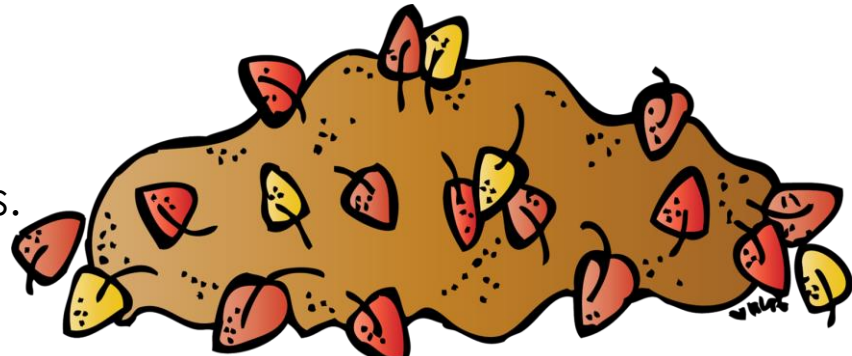
$\sqrt{4 \cdot 2}$

$2\sqrt{2}$

Steps:

1. Divide the radicands (the numbers inside the radicals)
2. Simplify the radical

Learning Objective:
I will be able to multiplying and divide radicals.



Divide and simplify.

$$4.) \sqrt{\frac{7}{3}} \cdot \sqrt{\frac{3}{28}} = \sqrt{\frac{1}{4}}$$

$$\frac{\sqrt{1}}{\sqrt{4}} = \frac{1}{2}$$

Steps:

1. Divide the radicands
(the numbers inside the radicals)

2. Simplify the radical



7. Simplify. $\sqrt{\frac{2\frac{2}{5}}{\times 5}} \cdot \sqrt{\frac{1\frac{2}{3}}{\times 3}}$

$\sqrt{\frac{\cancel{12}^4}{\cancel{5}_1} \cdot \frac{\cancel{5}^1}{\cancel{3}_1}}$

$\sqrt{4} = 2$

Change the mixed fractions into improper fractions

Simplify the radical fraction

<p>Notes: Simplifying</p> <p>Multiplying Radicals</p> <p>$\sqrt{\quad} \cdot \sqrt{\quad}$ (radical) times (radical)</p> <p>Steps:</p> <ol style="list-style-type: none"> 1. Multiply the coefficients (the numbers outside the radicals) 2. Multiply the radicands (the numbers inside the radicals) 3. Then simplify the radicals. 	<p>Radicals</p> <p>Dividing Radicals</p> <p>$\frac{\sqrt{\quad}}{\sqrt{\quad}}$ radical divided by a radical</p> <p>Steps to Divide Radicals</p> <ol style="list-style-type: none"> 1. Multiply the coefficients (the numbers outside the radicals) 2. Multiply the radicands (the numbers inside the radicals) 3. Then simplify the denominator (the number that remains in the denominator)
<p>Examples</p> <p>1.) $\sqrt{5} \cdot \sqrt{35}$</p> <p>2.) $2\sqrt{8} \cdot 3\sqrt{7}$</p> <p>Name: _____ Oct. 2 Algebra 1 Honors Glue on page _____</p>	<p>Examples</p> <p>3.) $\frac{\sqrt{56}}{\sqrt{7}}$</p> <p>4.) $\sqrt{\frac{7}{3}} \cdot \sqrt{\frac{3}{28}}$</p>

HW is inside your foldable

Learning Objective:
I will be able to multiplying and divide radicals.



Divide and simplify.

$$9.) \frac{-12\sqrt{24}}{3\sqrt{2}}$$

$$-4\sqrt{12}$$
$$-4\sqrt{4 \cdot 3}$$

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

$$-8\sqrt{3}$$

Steps:

1. Divide the coefficients
(the numbers outside the radicals)
2. Divide the radicands
(the numbers inside the radicals)
3. Simplify the radical



Divide and simplify.

No radicals in the denominator.

To "remove" a radical from the denominator, multiply the top and bottom of the fraction by that same radical to create a rational number (a perfect square radical) in the denominator. This process is called **rationalizing the denominator**.

$$10.) \frac{\sqrt{5}}{\sqrt{10}}$$

$$\sqrt{\frac{1}{2}}$$

$$\frac{\sqrt{1}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

Steps:

1. Divide the radicands (the numbers inside the radicals)
2. Rationalizing the denominator

$$(\sqrt{2})^2 = 2$$

$$(\sqrt{3})^2 = 3$$

Learning Objective:

I will be able to multiplying and divide radicals.

Divide and simplify.

$$11.) \frac{3}{\sqrt{12}} \cdot \frac{\sqrt{12}}{\sqrt{12}} = \frac{\cancel{3}\sqrt{12}}{\cancel{12}_4}$$

$$\frac{\sqrt{\cancel{4} \cdot 3}}{4}$$

$$\frac{\cancel{2}\sqrt{3}}{\cancel{4}_2}$$

$$= \frac{\sqrt{3}}{2}$$

$$(\sqrt{12})(\sqrt{12}) = \sqrt{144}$$

↓
12



Divide and simplify.

No radicals in the denominator.

To "remove" a radical from the denominator, multiply the top and bottom of the fraction by that same radical to create a rational number (a perfect square radical) in the denominator. This process is called **rationalizing the denominator**.

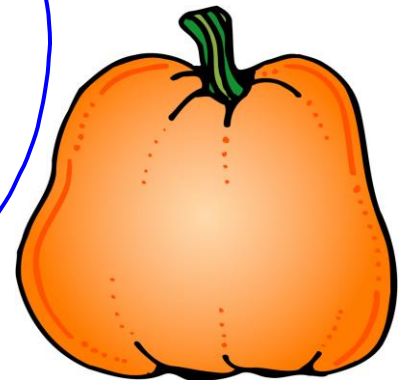
$$12.) \frac{7}{2\sqrt{3}} \cdot \frac{2\sqrt{3}}{2\sqrt{3}}$$

Rationalize.

Multiply the top and bottom by the radical.

$$= \frac{7\sqrt{3}}{6\sqrt{3}}$$

$$= \frac{7\sqrt{3}}{6}$$



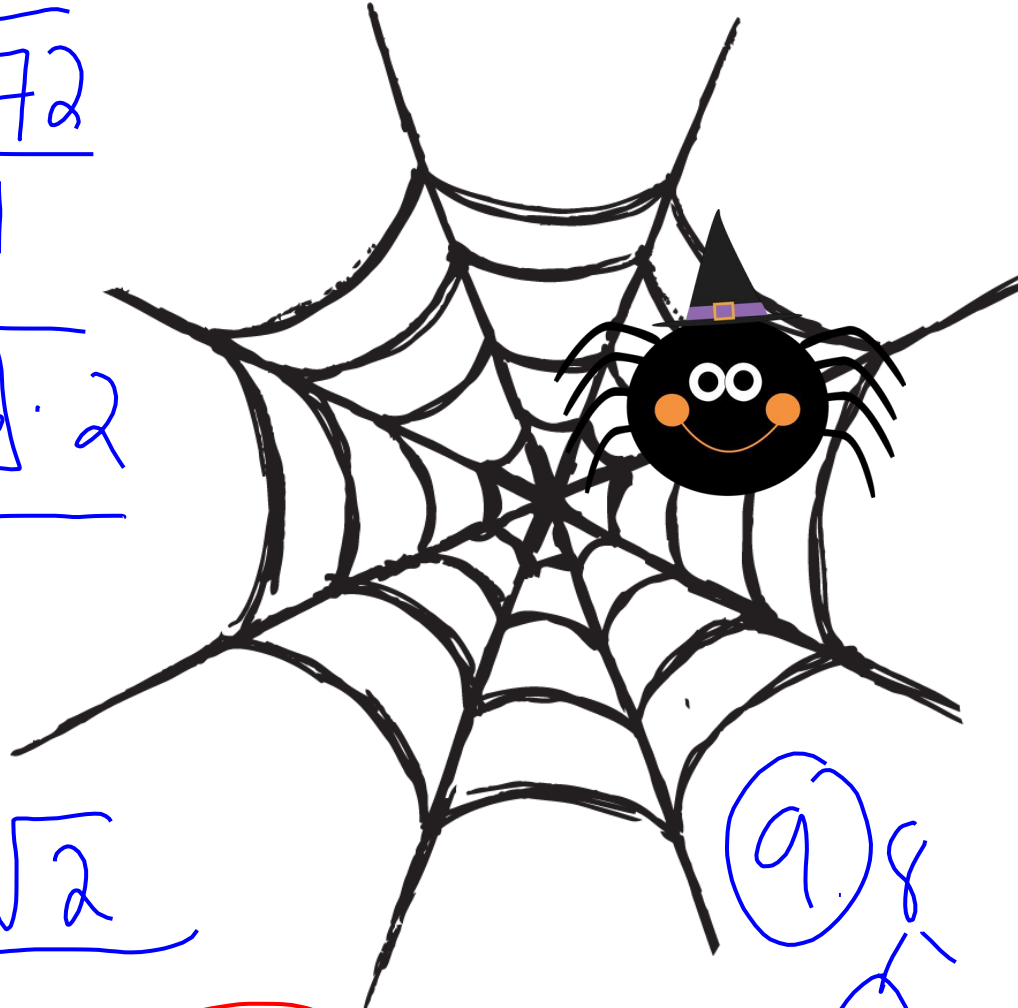
Learning Objective:
I will be able to multiplying and divide radicals.

$$13.) \frac{9\sqrt{3}}{\sqrt{24}} \cdot \frac{\sqrt{24}}{\sqrt{24}} = \frac{9\sqrt{72}}{24}$$

$$= \frac{9\sqrt{36 \cdot 2}}{24}$$

$$= \frac{9 \cdot \cancel{6} \sqrt{2}}{\cancel{24} 4}$$

$$\frac{9\sqrt{2}}{4}$$



$$\begin{array}{r} 9 \\ \times 8 \\ \hline 72 \end{array}$$