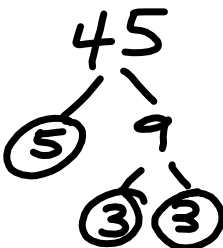


Put away cell phones

Have a seat and get ready for math!

Simplifying Radicals Work Mat

<p>Prime Factorization</p> 	<p>Work</p> $-4\sqrt{15} \cdot \sqrt{3}$ $(-4 \cdot 1)\sqrt{15 \cdot 3}$ $-4\sqrt{45}$ $-4\sqrt{3 \cdot 3 \cdot 5}$ $-4 \cdot 3\sqrt{5}$
<p>Solution</p> $-12\sqrt{5}$	
<p>Primes Below 100</p> <p>2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97</p>	

Quick Check!

Put away everything except a pencil

## Day 3: Adding and Subtracting Radicals

To add and subtract radicals, you have to use the same concept of combining "like terms", in other words, your radicands must be the same before you can add or subtract.

**Explore:** Simplify the following expressions:

a.  $4x + 6x$

$10x$

b.  $5x^2 - 2x^2$

$3x^2$

c.  $8x^2 + 3x - 4x^2$

$4x^2 + 3x$

**Adding/Subtracting Radicals – RULE**

1. Simplify all radicals
2. Then add/subtract the "like" radicals

**Practice:**

a.  $2\sqrt{5} + 6\sqrt{5}$

$(2+6)\sqrt{5}$   
 $8\sqrt{5}$

b.  $3\sqrt{7} + 2\sqrt{7}$

$(3+2)\sqrt{7}$   
 $5\sqrt{7}$

c.  $4\sqrt{15} - 6\sqrt{15}$

$(4-6)\sqrt{15}$   
 $-2\sqrt{15}$

$\begin{matrix} 15 \\ \swarrow \searrow \\ 3 \quad 5 \end{matrix}$

d.  $6\sqrt{7} + 8\sqrt{10} - 3\sqrt{7}$

$6\sqrt{7} - 3\sqrt{7} + 8\sqrt{10}$   
 $(6-3)\sqrt{7} + 8\sqrt{10}$   
 $3\sqrt{7} + 8\sqrt{10}$

$\begin{matrix} 10 \\ \swarrow \searrow \\ 5 \quad 2 \end{matrix}$

e.  $11\sqrt{5} - 2\sqrt{20}$

$11\sqrt{5} - 2 \cdot 2\sqrt{5}$   
 $11\sqrt{5} - 4\sqrt{5}$   
 $7\sqrt{5}$

$\begin{matrix} 20 \\ \swarrow \searrow \\ 5 \quad 4 \\ \swarrow \searrow \\ 2 \quad 2 \end{matrix}$

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

$3\sqrt{3} + 6 \cdot 3\sqrt{3}$   
 $3\sqrt{3} + 18\sqrt{3}$   
 $21\sqrt{3}$

$\begin{matrix} 27 \\ \swarrow \searrow \\ 3 \quad 9 \\ \swarrow \searrow \\ 3 \quad 3 \end{matrix}$

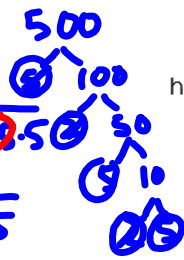
Foundations of Algebra

g.  $3\sqrt{5} + 2\sqrt{500}$

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

$$3\sqrt{5} + 20\sqrt{5}$$

$$\boxed{23\sqrt{5}}$$



Unit 2: Complex Number Systems

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

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

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

$$-\sqrt{3}$$

$$\boxed{-\sqrt{3}}$$



i.  $12\sqrt{50} + 6\sqrt{2}$

Putting It All Together:

Put together everything you have learned from Days 1 - 3:

a.  $\sqrt{12}(\sqrt{9} - \sqrt{4})$

$$\sqrt{12}(3 - 2)$$

$$\sqrt{12} \cdot 1$$

$$\boxed{\sqrt{12}}$$

b.  $\sqrt{3}(\sqrt{3} + 2\sqrt{5})$

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

$$3 + 2\sqrt{15}$$

$$\boxed{3 + 2\sqrt{15}}$$

c.  $\sqrt{5}(\sqrt{10} - \sqrt{15})$

$$(\sqrt{5} \cdot \sqrt{10}) - \sqrt{5} \cdot \sqrt{15}$$

$$\sqrt{50} - \sqrt{75}$$

$$\sqrt{2 \cdot 5 \cdot 5} - \sqrt{3 \cdot 5 \cdot 5}$$

$$5\sqrt{2} - 5\sqrt{3}$$

$$\boxed{5\sqrt{2} - 5\sqrt{3}}$$

d.  $-\sqrt{5}(\sqrt{10} + 3)$

$$(-\sqrt{5} \cdot \sqrt{10}) + (-\sqrt{5} \cdot 3)$$

$$-\sqrt{50} + -3\sqrt{5}$$

$$-\sqrt{2 \cdot 5 \cdot 5} - 3\sqrt{5}$$

$$\boxed{-5\sqrt{2} - 3\sqrt{5}}$$

e.  $5\sqrt{6}(\sqrt{6} + 4\sqrt{5})$



f.  $-3\sqrt{3}(4\sqrt{6} - 2\sqrt{2})$

$$(-3\sqrt{3} \cdot 4\sqrt{6}) + (-3\sqrt{3} \cdot -2\sqrt{2})$$

$$-12\sqrt{18} + 6\sqrt{6}$$

$$-12\sqrt{2 \cdot 3 \cdot 3} + 6\sqrt{6}$$

$$-12 \cdot 3\sqrt{2} + 6\sqrt{6}$$

$$\boxed{-36\sqrt{2} + 6\sqrt{6}}$$

## Tic Tac Toe Practice

If you get 5 in a row, let a teacher check it and you will receive a small prize