

## MasterMath



Number Sense

### SIMPLIFYING SQUARE ROOTS




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### SIMPLIFYING SQUARE ROOTS

Rules For Simplifying Square Root

**Treat the Radical like a variable**

**Factor the Radical**

**Break-Up the Radical**




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### SIMPLIFYING SQUARE ROOTS

Rules For Simplifying Square Root

**Treat the Radical like a variable**

$$3x + 2x = 5x$$

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

$$3x * 2x = 6x^2$$

$$3\sqrt{7} * 2\sqrt{7} = 6*7 = 42$$




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## SIMPLIFYING SQUARE ROOTS

Rules For Simplifying Square Root

$$12 = 2 * 2 * 3$$

Factor the Radical

$$\sqrt{12} = \sqrt{(2 * 2 * 3)}$$




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## SIMPLIFYING SQUARE ROOTS

Rules For Simplifying Square Root

$$\sqrt{(4*9)} = \sqrt{4*\sqrt{9}} \quad \sqrt{36} = 6 \quad 2 * 3 = 6$$

$$\sqrt{(16\div 4)} \quad \sqrt{4} = 2$$

$$= \sqrt{16\div\sqrt{4}} \quad 4 \div 2 = 2$$

Break-Up the Radical




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## SIMPLIFYING SQUARE ROOTS

Rules For Simplifying Square Root

$$\sqrt{(4+9)} \neq \sqrt{4+\sqrt{9}} \quad \sqrt{13} \approx 3.6 \quad 2+3=5$$

$$\sqrt{(16 - 4)} \quad \sqrt{12} \approx 3.46$$

$$\neq \sqrt{16-\sqrt{4}} \quad 4 - 2 = 2$$

Break-Up the Radical




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SIMPLIFYING SQUARE ROOTS

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$4\sqrt{36} + 3\sqrt{36}$  **Treat the Radical like a variable**  
**Factor the Radical**  
**Break-Up the Radical**

**You Try It!** 

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SIMPLIFYING SQUARE ROOTS

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$4\sqrt{36} + 3\sqrt{36}$   
 $= 7\sqrt{36}$   
 $= 7\sqrt{(2*2*3*3)}$   
 $= 7*2*3$   
 $= 42$

$36 = 18 * 2$   
 $= 9 * 2 * 2$   
 $= 3 * 3 * 2 * 2$

**You Try It!** 

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SIMPLIFYING SQUARE ROOTS

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$\sqrt{48}$

**You Try It!**

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## SIMPLIFYING SQUARE ROOTS

$$\begin{aligned}\sqrt{48} \\ &= \sqrt{(2*2*2*2*3)} \\ &= 2 * 2 * \sqrt{3} \\ &= 4\sqrt{3}\end{aligned}$$

You Try 


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## SIMPLIFYING SQUARE ROOTS

$$\sqrt{(a^2b)}$$

You Try It! 


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## SIMPLIFYING SQUARE ROOTS

$$\sqrt{(a^2b)}$$

$$= \sqrt{a^2} * \sqrt{b}$$

$$= a\sqrt{b}$$

You Try 


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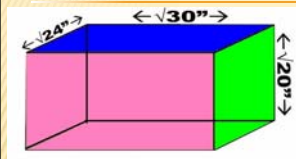
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## SIMPLIFYING SQUARE ROOTS



Find the volume:  
 $V = b * w * h$

You Try It!

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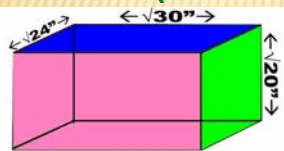
## SIMPLIFYING SQUARE ROOTS

$$V = b * w * h$$

$$V = \sqrt{30} * \sqrt{24} * \sqrt{20}$$

$$V = \sqrt{(5*6)} * \sqrt{(6*4)} * \sqrt{(5*4)}$$

$$V = \sqrt{(5*6*6*4*5*4)}$$



$$V = 5 * 6 * 4$$

$$V = 120 \text{ sq in}$$

You Try It!

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## SIMPLIFYING SQUARE ROOTS

Now, try it on your own. Go to

[www.MasterMath.info](http://www.MasterMath.info)

download

*Simplifying Square Roots*

from the Worksheets Page, and test your skill. Then see how much you understand by taking the Subject Quiz




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