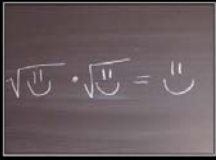


Unit 1: Radicals

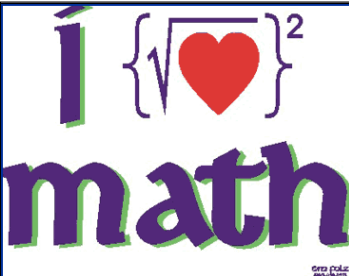


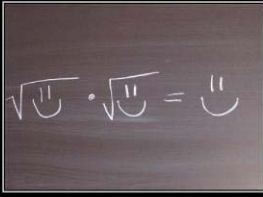
MATH  
Some are better at explaining it than others.

1.4 Dividing Radicals

There are three requirements that must be met in order to simplify quotients of radicals:

- i) There must not be a fraction under a radical sign.  
 ex)  $\sqrt{\frac{25}{6}}$        $\sqrt[3]{\frac{86}{7}}$
- ii) The denominator cannot contain a radical.  
 ex)  $\frac{1}{\sqrt{2}}$        $\frac{4\sqrt{5}-2}{\sqrt{5}}$
- iii) The denominator cannot contain a negative value.  
 ex)  $\frac{1}{-2}$        $\frac{\sqrt{5}}{-\sqrt{6}}$





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The quotient property of radicals has the same idea as the product property of radicals:


$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

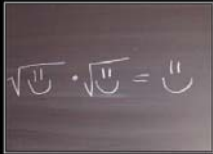
$\sqrt{9} = 3$

$\sqrt{\frac{36}{4}} = \frac{\sqrt{36}}{\sqrt{4}}$

$\frac{\sqrt{36}}{\sqrt{4}} = \frac{6}{2} = 3$

When you see a division questions, first check to see if the radicands divide nicely. if they don't, simplify first and then check again. If they never end up dividing nicely, you will need to rationalize the denominator...tomorrow's leson.

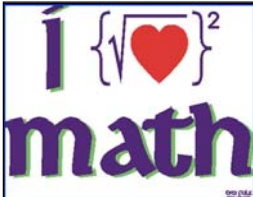


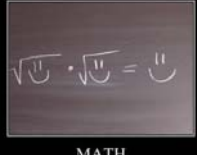


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Ex.) Simplify.

<p>a) <math>\frac{\sqrt{30}}{\sqrt{6}}</math></p> $= \sqrt{\frac{30}{6}}$ $= \boxed{\sqrt{5}}$	<p>b) <math>\frac{21\sqrt{50}}{-7\sqrt{2}}</math></p> $= \frac{21}{-7} \sqrt{\frac{50}{2}}$ $= -3\sqrt{25}$ $= -3(5)$ $= \boxed{-15}$	<p>c) <math>\frac{6\sqrt{24}}{18\sqrt{3}}</math></p> $= \frac{6}{18} \sqrt{\frac{24}{3}}$ $= \frac{1}{3} \sqrt{8 \cdot 2}$ $= \frac{1}{3} \sqrt{16 \cdot 2}$ $= \boxed{\frac{2\sqrt{2}}{3}}$
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<p>d) <math>\frac{\sqrt{27}}{\sqrt{16}}</math></p> $= \frac{\sqrt{27}}{4}$ $= \frac{\sqrt{9 \cdot 3}}{4}$ $= \boxed{\frac{3\sqrt{3}}{4}}$ <p style="text-align: center; margin-left: 20px;">or</p> $= \boxed{\frac{3}{4}\sqrt{3}}$	<p>e) <math>\frac{6\sqrt{30}}{12\sqrt{8}}</math></p> $= \frac{6\sqrt{30}}{12\sqrt{4 \cdot 2}}$ $= \frac{6\sqrt{30}}{24\sqrt{2}}$ $= \frac{6}{24} \sqrt{\frac{30}{2}}$ $= \boxed{\frac{1}{4}\sqrt{15}}$ $= \boxed{\frac{\sqrt{15}}{4}}$	<p>f) <math>\frac{6\sqrt{18} + 10\sqrt{24} + 8\sqrt{12}}{2\sqrt{3}}</math></p> $= \frac{6\sqrt{18}}{2\sqrt{3}} + \frac{10\sqrt{24}}{2\sqrt{3}} + \frac{8\sqrt{12}}{2\sqrt{3}}$ $= \frac{6}{2} \sqrt{\frac{18}{3}} + \frac{10}{2} \sqrt{\frac{24}{3}} + \frac{8}{2} \sqrt{\frac{12}{3}}$ $= 3\sqrt{6} + 5\sqrt{8} + 4\sqrt{4}$ $= 3\sqrt{6} + 5\sqrt{4 \cdot 2} + 4(2)$ <p style="text-align: right; margin-right: 20px;">Pg. 290 # 6.</p> $= \boxed{3\sqrt{6} + 10\sqrt{2} + 8}$
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