Math 1

Operations with Radical Equations

Use the Distributive Property to simplify sums or differences of radical expressions by combining *like radicals*. Like radicals such as _____have the same radicand. Unlike radicals, such as _____ have different radicands.

Combining Like Radicals.

a. $6\sqrt{11} + 9\sqrt{11}$ b. $\sqrt{3} - 5\sqrt{3}$ c. $7\sqrt{2} - 8\sqrt{2}$ d. $5\sqrt{5} + 2\sqrt{5}$

Simplifying to Combine Like Radicals

a. $5\sqrt{3} - \sqrt{12}$ b. $4\sqrt{7} + 2\sqrt{28}$ c. $5\sqrt{32} - 4\sqrt{18}$

Practice: pg. 616 # 9-20

Multiplying Radical Expressions

Example 1: $\sqrt{10}\,(\sqrt{6} + 3)$

Example 2. $(\sqrt{6} - 2\sqrt{3})\,(\sqrt{6} + \sqrt{3})$

You Try!

a. $\sqrt{2}\,(\sqrt{6} + 5)$ b. $(\sqrt{11} - 2)^2$ c. $(\sqrt{6} - 2\sqrt{3})\,(4\sqrt{3} + 3\sqrt{6}$

Practice pg.616 #21-29

Conjugates are the sum and difference of the same two terms. Example: _____
The product of conjugates is a difference of squares.

Rationalizing a Denominator Using Conjugates

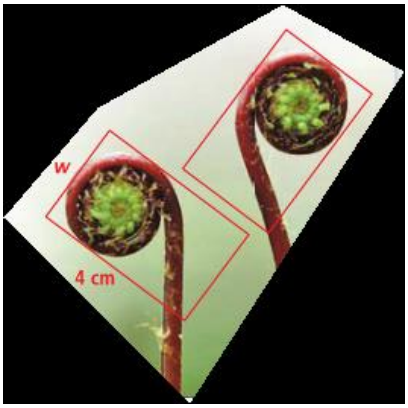
Example 3: $\frac{10}{\sqrt{7} - \sqrt{2}}$

Example 4: $\frac{-3}{\sqrt{10} + \sqrt{5}}$

Practice: pg.616 #30-35

Golden Rectangles appear frequently in nature and art. The ratio of the length to the width of a golden rectangle is $(1 + \sqrt{5}) \bullet 2$.

Solving a Proportion Involving Radicals
Fiddlehead ferns naturally grow in spirals that fit into golden rectangles. What is the width w of the fern shown?



A golden rectangle is 12 in. long. What is the width of the rectangle? Write your answer in simplified radical form. Round to the nearest tenth of an inch.