9.1 Simplifying Radical Expressions DAY TWO

$1 \quad 4 \quad 9 \quad 16 \quad 25 \quad 36 \quad 49 \quad 64 \quad 81 \quad 100 \quad 121 \quad 144$

Reminder from yesterday:

$$\sqrt{27}$$
$$\sqrt{3 \cdot 9}$$
$$\sqrt[2]{3 \cdot 3 \cdot 3}$$
$$3$$
$$\boxed{3\sqrt{3}}$$

$$\sqrt{2} \cdot \sqrt{6}$$
$$\sqrt{2 \cdot 6}$$
$$\sqrt{2 \cdot 2 \cdot 3}$$
$$2$$
$$\boxed{2\sqrt{3}}$$

$$\sqrt{500x^5}$$
$$\sqrt{5 \cdot 100 \cdot x^5}$$
$$\sqrt{5 \cdot 10 \cdot 10 \cdot x \cdot x \cdot x \cdot x \cdot x}$$
$$10 \qquad x^2$$
$$\boxed{10x^2\sqrt{5x}}$$
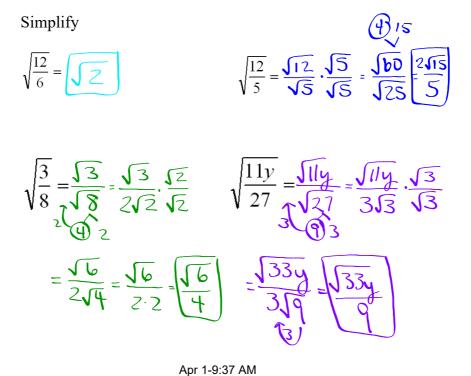

Quotient Property of Square Roots

For any two numbers **a** and **b**, where $a \geq 0$ and $b \geq 0$, the square root of the quotient a/b is equal to the **quotient of each square root**.
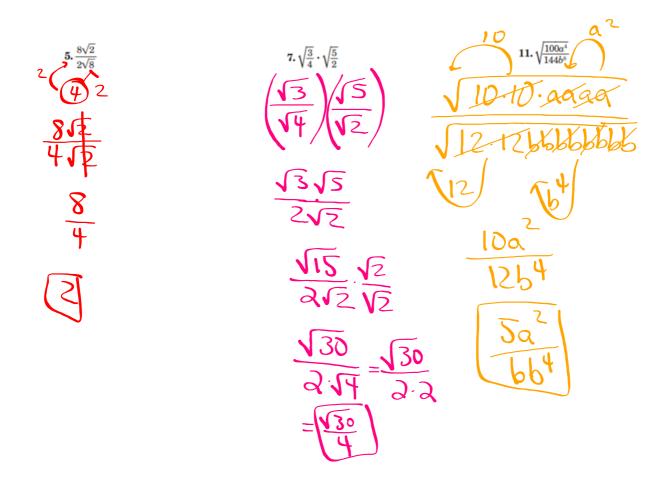
$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

Example: $\quad \sqrt{\dfrac{64}{49}} = \dfrac{\sqrt{64}}{\sqrt{49}} = \dfrac{8}{7}$

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1

A fraction containing radicals is in <mark>simplest form</mark> if **no prime factors appear under the radical sign with an exponent greater than 1 and if <mark>no radicals are left in the denominator.</mark>** The method of eliminating radicals in the denominator is called <mark>**rationalizing the denominator**</mark>.

Simplify

$$\sqrt{\frac{12}{6}} = \boxed{\sqrt{2}}$$

$$\sqrt{\frac{12}{5}} = \frac{\sqrt{12}}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{\sqrt{60}}{\sqrt{25}} = \boxed{\frac{2\sqrt{15}}{5}}$$

④15

$$\sqrt{\frac{3}{8}} = \frac{\sqrt{3}}{\sqrt{8}} = \frac{\sqrt{3}}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

④2

$$= \frac{\sqrt{6}}{2\sqrt{4}} = \frac{\sqrt{6}}{2 \cdot 2} = \boxed{\frac{\sqrt{6}}{4}}$$

$$\sqrt{\frac{11y}{27}} = \frac{\sqrt{11y}}{\sqrt{27}} = \frac{\sqrt{11y}}{3\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

⑨3

$$= \frac{\sqrt{33y}}{3\sqrt{9}} = \boxed{\frac{\sqrt{33y}}{9}}$$

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5. $\dfrac{8\sqrt{2}}{2\sqrt{8}}$

④2

$$\frac{8\sqrt{2}}{4\sqrt{2}}$$

$$\frac{8}{4}$$

$$\boxed{2}$$

7. $\sqrt{\frac{3}{4}} \cdot \sqrt{\frac{5}{2}}$

$$\left(\frac{\sqrt{3}}{\sqrt{4}}\right)\left(\frac{\sqrt{5}}{\sqrt{2}}\right)$$

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

$$\frac{\sqrt{15}}{2\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$\frac{\sqrt{30}}{2\sqrt{4}} = \frac{\sqrt{30}}{2 \cdot 2}$$

$$= \boxed{\frac{\sqrt{30}}{4}}$$

11. $\sqrt{\frac{100a^4}{144b^8}}$

10   a²

$$\frac{\sqrt{10 \cdot 10 \cdot aaaa}}{\sqrt{12 \cdot 12 bbbbbbbb}}$$

12   b⁴

$$\frac{10a^2}{12b^4}$$

$$\boxed{\frac{5a^2}{6b^4}}$$

Assignment for 9.1 DAY TWO:

9.1 Day Two Practice WS: 1 - 20 OMIT any 4 of your choice!

Apr 18-1:30 PM