

Dividing Radicals

** When **dividing** radicals, you divide the numbers out front together and you then divide the radicands together!!

Example:

$$\frac{4\sqrt{21}}{2\sqrt{3}}$$
$$= 2\sqrt{7}$$

#1

$$\frac{3\sqrt{6}}{1\sqrt{3}} \\ = 3\sqrt{2}$$

#2

$$\frac{8\sqrt{75}}{4\sqrt{15}} \\ = 2\sqrt{5}$$

#3

$$\frac{\sqrt{6} - 4\sqrt{8}}{\sqrt{2}}$$

**Break apart
the radicals!!**

$$= \frac{\sqrt{6}}{\sqrt{2}} - \frac{4\sqrt{8}}{1\sqrt{2}}$$

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

$$= \sqrt{3} - 4(2)$$

$$= \sqrt{3} - 8$$

#4

$$\frac{2\sqrt{12} - 6\sqrt{21}}{2\sqrt{3}}$$

Break apart the radicals !!

$$= \frac{2\sqrt{12}}{2\sqrt{3}} - \frac{6\sqrt{21}}{2\sqrt{3}}$$

$$= 1\sqrt{4} - 3\sqrt{7}$$

$$= 1(2) - 3\sqrt{7}$$

$$= 2 - 3\sqrt{7}$$

Try These:

$$\#1 \quad \frac{4\sqrt{35}}{-2\sqrt{7}}$$

$$\#2 \quad \frac{4\sqrt{72}}{2\sqrt{8}}$$

$$\#3 \quad \frac{4\sqrt{8} - 2\sqrt{24}}{2\sqrt{4}}$$

$$\#4 \quad \frac{6\sqrt{18} - 12\sqrt{32}}{3\sqrt{2}}$$

$$\#5 \quad \frac{3\sqrt{14} + 6\sqrt{8}}{3\sqrt{2}}$$

#1

$$\frac{4\sqrt{35}}{-2\sqrt{7}}$$
$$= -2\sqrt{5}$$

#2

$$\frac{4\sqrt{72}}{2\sqrt{8}}$$
$$= 2\sqrt{9}$$
$$= 2(3)$$
$$= 6$$

#3

$$\begin{aligned} & \frac{4\sqrt{8} - 2\sqrt{24}}{2\sqrt{4}} \\ &= \frac{4\sqrt{8}}{2\sqrt{4}} - \frac{2\sqrt{24}}{2\sqrt{4}} \\ &= 2\sqrt{2} - \sqrt{6} \end{aligned}$$

OR

$$\begin{aligned} & \frac{4\sqrt{8} - 2\sqrt{24}}{2\sqrt{4}} \\ &= \frac{4\sqrt{8} - 2\sqrt{24}}{4} \\ &= \frac{4\sqrt{8}}{4} - \frac{2\sqrt{24}}{4} \\ &= \sqrt{8} - \frac{1}{2}\sqrt{24} \\ &= \sqrt{4 \times 2} - \frac{1}{2}\sqrt{4 \times 6} \\ &= 2\sqrt{2} - \frac{2}{2}\sqrt{6} \\ &= 2\sqrt{2} - \sqrt{6} \end{aligned}$$

#4

$$\begin{aligned} & \frac{6\sqrt{18} - 12\sqrt{32}}{3\sqrt{2}} \\ &= \frac{6\sqrt{18}}{3\sqrt{2}} - \frac{12\sqrt{32}}{3\sqrt{2}} \\ &= 2\sqrt{9} - 4\sqrt{16} \\ &= 2(3) - 4(4) \\ &= 6 - 16 \\ &= -10 \end{aligned}$$

#5

$$\begin{aligned} & \frac{3\sqrt{14} + 6\sqrt{8}}{3\sqrt{2}} \\ &= \frac{3\sqrt{14}}{3\sqrt{2}} + \frac{6\sqrt{8}}{3\sqrt{2}} \\ &= \sqrt{7} + 2\sqrt{4} \\ &= \sqrt{7} + 2(2) \\ &= \sqrt{7} + 4 \end{aligned}$$

