

*More Practice with Simplifying Radicals (with variables)*

Think back to simplifying radicals with whole numbers like  $\sqrt{\frac{16}{3}}$ .

$$\frac{\sqrt{16}}{\sqrt{3}} = \frac{4}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{4\sqrt{3}}{3}$$

Simplify the following expressions. Make sure the denominator is rationalized (does not contain radicals).

1.  $\sqrt{\frac{7}{x^2}} = \frac{\sqrt{7}}{\sqrt{x^2}} = \frac{\sqrt{7}}{x}$

2.  $\sqrt{\frac{1}{y^2}} = \frac{\sqrt{1}}{\sqrt{y^2}} = \frac{1}{y}$

3.  $\sqrt{\frac{11}{d^2}} = \frac{\sqrt{11}}{\sqrt{d^2}} = \frac{\sqrt{11}}{d}$

4.  $\sqrt{\frac{2}{3b}} = \frac{\sqrt{2}}{\sqrt{3b}} \cdot \frac{\sqrt{3b}}{\sqrt{3b}} = \frac{\sqrt{6b}}{3b}$

5.  $\sqrt{\frac{3}{5a}} = \frac{\sqrt{3}}{\sqrt{5a}} \cdot \frac{\sqrt{5a}}{\sqrt{5a}} = \frac{\sqrt{15a}}{5a}$

6.  $\frac{3}{\sqrt{2x}} \cdot \frac{\sqrt{2x}}{\sqrt{2x}} = \frac{3\sqrt{2x}}{2x}$