

# 9.1 Practice A

In Exercises 1–9, simplify the expression.

1.  $\sqrt{50}$

2.  $\sqrt{68}$

3.  $-\sqrt{98}$

4.  $\sqrt{\frac{9}{25}}$

5.  $-\sqrt{\frac{3}{64}}$

6.  $-\sqrt{\frac{x^2}{4}}$

7.  $\sqrt[3]{24}$

8.  $\sqrt[3]{-250}$

9.  $-\sqrt[3]{128x^4}$

10. Describe and correct the error in simplifying the expression.

$\times \quad \sqrt[3]{16} = 4$
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In Exercises 11–13, write a factor that you can use to rationalize the denominator of the expression.

11.  $\frac{3}{\sqrt{5}}$

12.  $\frac{1}{\sqrt{7n}}$

13.  $\frac{5}{\sqrt[3]{9}}$

In Exercises 14–22, simplify the expression.

14.  $\frac{3}{\sqrt{3}}$

15.  $\frac{9}{\sqrt{5}}$

16.  $\frac{\sqrt{3}}{\sqrt{50}}$

17.  $\frac{4}{\sqrt{w}}$

18.  $\frac{1}{\sqrt{5t}}$

19.  $\sqrt{\frac{2z^2}{7}}$

20.  $\frac{1}{\sqrt{6} - 1}$

21.  $\frac{3}{4 + \sqrt{2}}$

22.  $\frac{\sqrt{3}}{5 - \sqrt{2}}$

23. The average annual interest rate  $r$  (in decimal form) of a savings account is represented by the formula  $r = \sqrt{\frac{V_2}{V_0}} - 1$ , where  $V_0$  is the initial investment and  $V_2$  is the balance of the account after 2 years. Find the average annual interest rate  $r$  of a savings account with an initial investment of \$400 and a balance of \$422 after 2 years.

## 9.1 Practice B

In Exercises 1–9, simplify the expression.

1.  $\sqrt{54}$

2.  $\sqrt{25y^2}$

3.  $-\sqrt{18n^3}$

4.  $\sqrt{\frac{29}{100}}$

5.  $\sqrt{\frac{p^3}{49}}$

6.  $\sqrt{\frac{36}{9x^2}}$

7.  $\sqrt[3]{32q^2}$

8.  $\sqrt[3]{\frac{9d}{-8}}$

9.  $-\sqrt[3]{\frac{60x^2}{729y^3}}$

10. Describe and correct the error in simplifying the expression.

$$\begin{array}{l} \times \sqrt{\frac{30}{25}} = \sqrt{\frac{6}{5}} \\ \qquad \qquad \qquad = \frac{\sqrt{6}}{\sqrt{5}} \end{array}$$

In Exercises 11–13, write a factor that you can use to rationalize the denominator of the expression.

11.  $\frac{2}{\sqrt{7y}}$

12.  $\frac{8}{\sqrt[3]{k^2}}$

13.  $\frac{2}{3 - \sqrt{6}}$

In Exercises 14–22, simplify the expression.

14.  $\frac{4}{\sqrt{3}}$

15.  $\frac{\sqrt{2}}{\sqrt{45}}$

16.  $\frac{1}{\sqrt{6t}}$

17.  $\sqrt{\frac{5h^2}{7}}$

18.  $\frac{\sqrt{27}}{\sqrt{2d^3}}$

19.  $\frac{25}{\sqrt[3]{4}}$

20.  $\frac{5}{7 - \sqrt{2}}$

21.  $\frac{\sqrt{3}}{8 + \sqrt{7}}$

22.  $\frac{\sqrt{5}}{\sqrt{5} - \sqrt{7}}$

23. Use the special product pattern  $(a - b)(a^2 + ab + b^2) = a^3 - b^3$  to simplify the expression  $\frac{3}{\sqrt[3]{x} - 1}$ .