

# EXTRA PRACTICE — Exercises

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## Unit VII – Relations of Rational Number Degree Part B – Operations with Radical Expressions Lesson 6 – Rationalizing Denominators

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For each of the following, rationalize the denominator being sure that your result is simplified.

1.  $\frac{15}{\sqrt{18}}$

2.  $\frac{6x^2y^4}{\sqrt{24x^3y^{10}}}$

3.  $\sqrt{\frac{27a^3}{20m^5n^2}}$

4.  $\frac{14}{\sqrt{5} + \sqrt{3}}$

5.  $\frac{\sqrt{x} + \sqrt{y}}{\sqrt{x} - \sqrt{y}}$

6.  $\frac{15x^2}{\sqrt{27x^5}}$

7.  $\frac{14}{\sqrt[3]{7}}$

8.  $\frac{14}{\sqrt{3} - \sqrt{2}}$

9.  $\frac{8}{\sqrt{5} - 3}$

10.  $\frac{\frac{\sqrt{2}}{2} + 4}{1 - \frac{\sqrt{2}}{2}}$

11.  $\sqrt[3]{\frac{7}{25y^2}}$

12.  $\sqrt[5]{\frac{3}{16a^4b^2}}$

13.  $\frac{6x}{\sqrt[4]{2}}$

14.  $\frac{6a^2}{\sqrt[4]{8a^2}}$

15.  $\frac{\frac{\sqrt{5}}{2} - \frac{\sqrt{3}}{2}}{\frac{\sqrt{5}}{2} + \frac{\sqrt{3}}{3}}$

16.  $\frac{4h^3}{\sqrt[5]{8h^7}}$

17.  $\frac{\sqrt{a+b} + \sqrt{a-b}}{\sqrt{a+b} - \sqrt{a-b}}$

18.  $\frac{4xy^4}{\sqrt{32x^5y^8}}$

19.  $\sqrt[4]{\frac{3}{8a^2}}$

20.  $\frac{\sqrt{4x^2 + 1} + 2x}{\sqrt{4x^2 + 1} - 2x}$

## EXTRA PRACTICE — Answer Key

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For each of the following, rationalize the denominator being sure that your result is simplified.

1.  $\frac{5\sqrt{2}}{2}$

2.  $\frac{\sqrt{6x}}{2y}$

3.  $\frac{3a\sqrt{15a}}{10m^2}$

4.  $7(\sqrt{5} - \sqrt{3})$

5.  $\frac{x + 2\sqrt{xy} + y}{x - y}$

6.  $\frac{5\sqrt{3x}}{3x}$

7.  $2\sqrt[3]{49}$

8.  $14\sqrt{3} + 14\sqrt{2}$

9.  $-2\sqrt{5} - 6$

10.  $5\sqrt{2} + 9$

11.  $\frac{\sqrt[3]{35y}}{5y}$

12.  $\frac{\sqrt[5]{6ab^3}}{2ab}$

13.  $3\sqrt[4]{8}$

14.  $3a\sqrt[4]{2a^2}$

15.  $\frac{21 - 5\sqrt{15}}{21}$

16.  $2h^2\sqrt[5]{4h^3}$

17.  $\frac{b + \sqrt{(a-b)(a+b)}}{b}$

18.  $\frac{\sqrt{2}}{2x^2}$

19.  $\frac{\sqrt[4]{6a^2}}{2a}$

20.  $8x^2 + 4x\sqrt{4x^2 + 1} + 1$