

## Chapter 5 Review

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### 5.1 Working With Radicals, pages 188–198

1. Convert each entire radical to a mixed radical in simplest form. State any restrictions on the variable(s).

a)  $\sqrt{288}$

b)  $\sqrt{128c^2}$

c)  $\sqrt{24a^4b^3}$

d)  $\sqrt[3]{250x^3y^5}$

2. Convert each mixed radical to an entire radical. State any restriction on the variable(s).

a)  $4\sqrt{6}$

b)  $-5m\sqrt{7}$

c)  $3y\sqrt[3]{2y^2}$

d)  $-2x\sqrt[4]{6xy^3}$

3. Simplify. State any restrictions on the values for the variables.

a)  $3\sqrt{6} - 4\sqrt{6}$

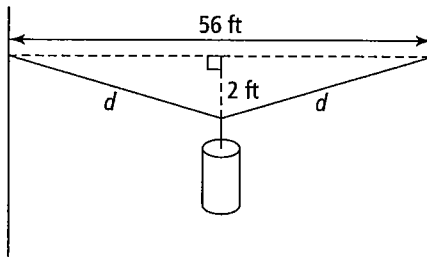
b)  $-\sqrt{45} + 2\sqrt{5} - \sqrt{20}$

c)  $-3\sqrt{18} + 3\sqrt{8x} - \sqrt{32x^3}$

d)  $2\sqrt[3]{6x^2y} - \sqrt[3]{48x^2y}$

4. Put the following values in ascending order:  $3\sqrt{30}$ ,  $\sqrt{250}$ , 16,  $4\sqrt{15}$ .

5. A wire is pulled taut between two posts. A weight is placed in the middle of the wire, which pulls the wire down at its centre by 2 ft. How long is the wire after the weight is placed on it? Write the answer in simplest radical form.



## 5.2 Multiplying and Dividing Radical Expressions, pages 199–209

6. Multiply. Express each product in simplest form. State any restrictions on the values for the variables.

a)  $(\sqrt{6})(\sqrt{14})$

b)  $(\sqrt{3x^2})(2\sqrt{3x^4})$

c)  $(-10y\sqrt{5})(4\sqrt{50})$

d)  $(5 - 4\sqrt{3})(3 + 3\sqrt{3})$

e)  $(\sqrt{2} - 3\sqrt{5r})^2$

f)  $(3 - \sqrt{2x})(3 + \sqrt{2x})$

7. Rationalize each denominator. State any restrictions on the values for the variable(s).

a)  $\frac{4}{\sqrt{5}}$

b)  $\frac{-\sqrt{2}}{8\sqrt{3}}$

c)  $\frac{3}{\sqrt{5} + 4}$

d)  $\frac{3 + 4\sqrt{3}}{\sqrt{2} + 2\sqrt{5}}$

e)  $\frac{\sqrt{15xy}}{\sqrt{10xy^3}}$

f)  $\frac{3n^2 + \sqrt{2n^2}}{\sqrt{10n}}$

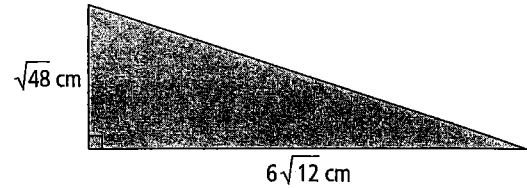
8. Write the conjugate of each expression.

a)  $\sqrt{3k} - 5$

b)  $-3\sqrt{2} - 4\sqrt{7}$

9. For the given right triangle, express the following in simplest radical form.

a) the perimeter



b) the area

### 5.3 Radical Equations, pages 211–222

10. Solve each radical equation. State any restrictions on the values for the variable(s).

a)  $-8 + \sqrt{5a - 5} = -3$

b)  $\sqrt{2n - 88} = \sqrt{\frac{n}{6}}$

c)  $b - 6 = \sqrt{18 - 3b}$

d)  $\sqrt{x + 4} - \sqrt{x - 4} = 2$

11. Two adjacent sides of a parallelogram have the measures  $\sqrt{14n - 45}$  cm and  $2n$  cm. Determine the actual lengths of the two sides if the perimeter of the parallelogram is 54 cm.

12. The Japanese game called Chu Shogi uses a square board. The board is covered with smaller squares that are alternating black and white. Each of these squares is 3 cm by 3 cm. If the diagonal of the square playing board is  $\sqrt{2592}$  cm, how many small squares are on the board?

## Chapter 5 Skills Organizer B

Complete the organizer for the concepts in Section 5.3, Radical Equations.

