

Algebra - Chapter 10 Study Guide

For Questions 1–6, simplify each expression.

1. $\sqrt{378} \cdot \sqrt{6}$

2. $\sqrt{21n^6y^{11}}$

3. $\sqrt{\frac{5x^4}{4n^5}}$

4. $\frac{\sqrt{8}}{2\sqrt{5} + \sqrt{6}}$

5. $5\sqrt{12} + 6\sqrt{\frac{1}{3}} - 3\sqrt{48}$

6. $2\sqrt{20x^3} - \sqrt{50} + 3\sqrt{45x^3}$

7. Find $(2\sqrt{6} + 7\sqrt{5})(2\sqrt{10} - 5\sqrt{3})$.

For Questions 8–10, solve each equation.

8. $\sqrt{3n - 2} + 6 = 10$

9. $\sqrt{\frac{5n}{3}} + 12 = 7$

10. $2x = 6 + \sqrt{2x^2 - 7x + 1}$

11. Find the length of the hypotenuse of a right triangle if $a = \sqrt{5}$ and $b = 6$.

12. Find the width of a rectangle with a diagonal of 12 centimeters and a length of 10 centimeters.

For Questions 13 and 14, determine whether the following side measures form right triangles.

13. 16, 49, 65

14. 5, 9, $\sqrt{106}$

15. Find the distance between the points at $(-4, 6)$ and $(10, 13)$.

16. Find the value of a if the distance between the points at $(-5, -7)$, $(-3, a)$ is $\frac{\sqrt{185}}{2}$ units.

17. Find the perimeter of a square $ABCD$ if two of the vertices are $A(8, -14)$ and $B(3, -4)$.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

For Questions 1-6, simplify each expression.

1. $\sqrt{24} \cdot \sqrt{3}$

2. $\sqrt{75y^4w^3}$

3. $\frac{\sqrt{14}}{\sqrt{45}}$

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

5. $3\sqrt{x} - 4\sqrt{x} + 7\sqrt{x}$

6. $\sqrt{20} + 2\sqrt{45} + 3\sqrt{80}$

7. Find $(\sqrt{6} + \sqrt{7})(\sqrt{21} - \sqrt{2})$.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

Solve each equation.

8. $\sqrt{m} = 2\sqrt{3}$

9. $\sqrt{2a + 14} - 13 = -7$

10. $10 + \sqrt{x - 8} = x$

8. _____

9. _____

10. _____

If c is the measure of the hypotenuse of a right triangle, find each missing measure. If necessary, round to the nearest hundredth.

11. $a = 6, b = 10, c = ?$

12. $b = 24, c = 25, a = ?$

11. _____

12. _____

Determine whether the following side measures form right triangles.

13. 14, 48, 50

14. 12, 24, 36

13. _____

14. _____

For Questions 15 and 16, find the distance between each pair of points whose coordinates are given. Express answers in simplest radical form and as decimal approximations rounded to the nearest hundredth, if necessary.

15. $(0, -4), (5, 2)$

16. $(7, 3), (-4, 11)$

15. _____

16. _____

17. Find the value of a if the distance between the points at $(3, 5)$ and $(7, a)$ is 5 units.

17. _____

Assessment