

11.2A p.723 #3 – 24 all

USING PRODUCT AND QUOTIENT PROPERTIES Simplify the expression.

3. $\sqrt{20}$

4. $\sqrt{48}$

5. $\sqrt{96}$

6. $\sqrt{72}$

7. $\sqrt{125b}$

8. $\sqrt{4x^2}$

9. $\sqrt{81m^3}$

10. $\sqrt{32m^5}$

11. $\sqrt{5} \cdot \sqrt{30}$

12. $\sqrt{50} \cdot \sqrt{18}$

13. $\sqrt{14x} \cdot \sqrt{2x}$

14. $\sqrt{3b^3} \cdot \sqrt{18b}$

15. $2\sqrt{a^4b^5}$

16. $\sqrt{64s^4t^3}$

17. $\sqrt{m^2n} \cdot \sqrt{n}$

18. $\sqrt{75xy} \cdot \sqrt{2x^3}$

19. $\sqrt{\frac{4}{49}}$

20. $\sqrt{\frac{7}{81}}$

21. $\sqrt{\frac{a^3}{121}}$

22. $\sqrt{\frac{100}{4x^2}}$

23. **★ MULTIPLE CHOICE** Which expression is equivalent to $\sqrt[3]{\frac{9x}{16}}$?

(A) $\frac{\sqrt{3x}}{4}$

(B) $\frac{3\sqrt{x}}{4}$

(C) $\frac{3\sqrt{x}}{16}$

(D) $\frac{3x}{4}$

24. **ERROR ANALYSIS** Describe and correct the error in simplifying the expression $\sqrt{72}$.

$$\begin{aligned}\sqrt{72} &= \sqrt{4} \cdot \sqrt{18} \\ &= 2\sqrt{18}\end{aligned}$$



11.2b p.723 #26 – 45 all

RATIONALIZING THE DENOMINATOR Simplify the expression.

26. $\frac{2}{\sqrt{2}}$

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

28. $\sqrt{\frac{5}{48}}$

29. $\sqrt{\frac{4}{52}}$

30. $\frac{3}{\sqrt{a}}$

31. $\frac{1}{\sqrt{2x}}$

32. $\sqrt{\frac{2x^2}{5}}$

33. $\sqrt{\frac{8}{3n^3}}$

PERFORMING OPERATIONS ON RADICALS Simplify the expression.

34. $2\sqrt{2} + 6\sqrt{2}$

35. $\sqrt{5} - 6\sqrt{5}$

36. $2\sqrt{6} - 5\sqrt{54}$

37. $9\sqrt{32} + \sqrt{2}$

38. $\sqrt{12} + 6\sqrt{3} + 2\sqrt{6}$

39. $3\sqrt{7} - 5\sqrt{14} + 2\sqrt{28}$

40. $\sqrt{5}(5 - \sqrt{5})$

41. $\sqrt{6}(7\sqrt{3} + 6)$

42. $\sqrt{3}(6\sqrt{2} - 4\sqrt{3})$

43. $(4 - \sqrt{2})(5 + \sqrt{2})$

44. $(2\sqrt{5} + 7)^2$

45. $(\sqrt{7} + \sqrt{3})(6 + \sqrt{8})$

11.3 p.732 #3 – 27 all

SOLVING EQUATIONS Solve the equation. Check for extraneous solutions.

3. $3\sqrt{x} - 6 = 0$

4. $2\sqrt{x} - 9 = 0$

5. $\sqrt{3x} + 4 = 16$

6. $\sqrt{5x} + 5 = 0$

7. $\sqrt{x+7} + 5 = 11$

8. $\sqrt{x-8} - 4 = -2$

9. $2\sqrt{x-4} - 2 = 2$

10. $3\sqrt{x-1} - 5 = 5$

11. $\sqrt{6-2x} + 12 = 21$

12. $5\sqrt{x-3} + 4 = 14$

13. $2\sqrt{x-11} - 8 = 4$

14. $\sqrt{3x-2} = \sqrt{x}$

15. $\sqrt{7-2x} = \sqrt{9-x}$

16. $\sqrt{3x+8} = \sqrt{x+4}$

17. $\sqrt{9x-30} = \sqrt{4x+5}$

18. $\sqrt{21-x} - \sqrt{1-x} = 0$

19. $\sqrt{x-12} - \sqrt{x-8} = 0$

20. $\sqrt{\frac{1}{2}x-2} - \sqrt{x-8} = 0$

21. **★ MULTIPLE CHOICE** Which is the solution of the equation $10\sqrt{x+3} + 3 = 18$?

(A) $-\frac{3}{2}$

(B) $-\frac{3}{4}$

(C) $\frac{3}{4}$

(D) $\frac{3}{2}$

SOLVING EQUATIONS Solve the equation. Check for extraneous solutions.

22. $x = \sqrt{42-x}$

23. $\sqrt{4-3x} = x$

24. $\sqrt{11x-24} = x$

25. $\sqrt{14x-3} = 4x$

26. $2x = \sqrt{1-3x}$

27. $\sqrt{2-x} = x+4$

11.4 p.740 # 3 – 28 all

USING THE PYTHAGOREAN THEOREM Let a and b represent the lengths of the legs of a right triangle, and let c represent the length of the hypotenuse. Find the unknown length.

3. $a = 3, c = 5$

4. $b = 3, c = 7$

5. $a = 5, b = 6$

6. $b = 5, c = 10$

7. $a = 8, b = 8$

8. $a = 5, b = 12$

9. $a = 8, b = 12$

10. $a = 7, c = 25$

11. $b = 15, c = 17$

12. $a = 9, c = 41$

13. $b = 3, c = 3.4$

14. $a = 1.2, c = 3.7$

15. **★ MULTIPLE CHOICE** A tennis court is 36 feet by 78 feet. What is the length of a diagonal? Round your answer to the nearest tenth of a foot.

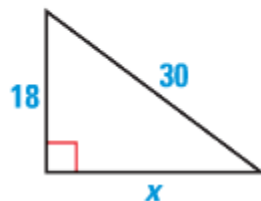
(A) 42.0 feet

(B) 69.2 feet

(C) 85.9 feet

(D) 114.0 feet

16. **ERROR ANALYSIS** Describe and correct the error in finding the unknown length.



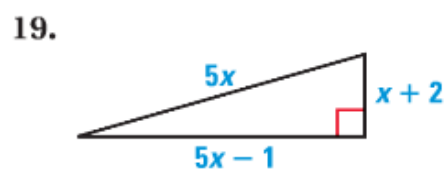
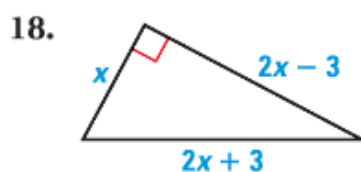
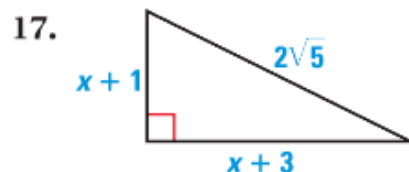
$$18^2 + 30^2 = x^2$$

$$1224 = x^2$$

$$6\sqrt{34} = x$$



USING THE PYTHAGOREAN THEOREM Find the unknown lengths.



20. A right triangle has one leg that is 2 inches longer than the other leg. The length of the hypotenuse is $\sqrt{130}$ inches. Find the lengths of the legs.

21. A right triangle has one leg that is 3 times as long as the other leg. The length of the hypotenuse is $\sqrt{40}$ inches. Find the lengths of the legs.

22. A right triangle has one leg that is $\frac{1}{2}$ of the length of the other leg. The length of the hypotenuse is $6\sqrt{5}$ inches. Find the lengths of the legs.

DETERMINING RIGHT TRIANGLES Tell whether the triangle with the given side lengths is a right triangle.

23. 2, 3, 4

24. 9, 12, 15

25. 8, 16, 18

26. 9, 21, 24

27. 11, 60, 61

28. 24, 143, 145

11.5 p.747 #3 – 43 odds

FINDING DISTANCE Find the distance between the two points.

3. $(4, 8), (4, 7)$

5. $(2, -2), (6, 1)$

7. $(-4, 1), (3, -1)$

9. $(-6, 7), (2, 9)$

11. $(7, 5), (-12, -1)$

13. $(5, -\frac{1}{2}), (-3, \frac{5}{2})$

15. **★ MULTIPLE CHOICE** What is the distance between $(4.5, 1)$ and $(-2.5, -5)$?

(A) $\sqrt{13}$

(B) $\sqrt{24}$

(C) $\sqrt{68.5}$

(D) $\sqrt{85}$

FINDING MISSING COORDINATES The distance d between two points is given.

Find the value of b .

17. $(13, -3), (b, 2); d = 13$

19. $(b, -6), (-5, 2); d = 10$

21. $(b, -4), (4, 7); d = 11\sqrt{2}$

FINDING THE MIDPOINT Find the midpoint of the line segment with the given endpoints.

23. $(6, -3), (4, -7)$

25. $(11, -4), (-9, -4)$

27. $(-17, -8), (-5, -4)$

29. $(-2, 3), (-2, -3)$

31. $(-15, -8), (-1, -1)$

33. $(-50, -75), (8, 9)$

ERROR ANALYSIS Describe and correct the error in finding the distance between $(-17, -2)$ and $(3, 8)$.

35.

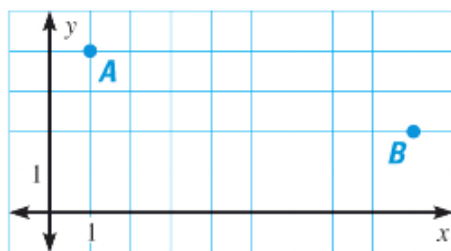
Distance:

$$\begin{aligned}d &= \sqrt{(3 - (-17))^2 - (8 - (-2))^2} \\ &= \sqrt{400 - 100} \\ &= \sqrt{300} = 10\sqrt{3}\end{aligned}$$



37. **★ MULTIPLE CHOICE** What is the distance between point A and the midpoint of the line segment that joins points A and B ?

- (A) $\sqrt{17}$ units (B) $3\sqrt{5}$ units
(C) $2\sqrt{17}$ units (D) $\sqrt{117}$ units



FINDING ENDPONTS The midpoint and an endpoint of a line segment are given. Find the other endpoint.

39. endpoint: $(-2, -4)$
midpoint: $(3, -3)$

RIGHT TRIANGLES Use the distance formula and the converse of the Pythagorean theorem to determine whether the points are vertices of a right triangle.

41. $(3, 5), (3, -1), (-2, -1)$

43. $(-5, -2), (0, -4), (-2, 3)$