

## Chapter 8 Review

## Simplify. (8.1)

- |                  |                 |                      |                  |                    |
|------------------|-----------------|----------------------|------------------|--------------------|
| 1. $\sqrt{64}$   | 4. $\sqrt{441}$ | 7. $\sqrt{25y^{10}}$ | 10. $\sqrt{120}$ | 13. $\sqrt{700}$   |
| 2. $\sqrt{4y^6}$ | 5. $\sqrt{196}$ | 8. $\sqrt{48}$       | 11. $\sqrt{440}$ | 14. $\sqrt{180}$   |
| 3. $\sqrt{289}$  | 6. $\sqrt{-36}$ | 9. $\sqrt{300}$      | 12. $\sqrt{-50}$ | 15. $\sqrt{81y^8}$ |

## Find the value of the variable that would yield a real number for the expression. (8.1)

- |                   |                     |                    |
|-------------------|---------------------|--------------------|
| 16. $\sqrt{x-5}$  | 19. $\sqrt{5x}$     | 22. $\sqrt{5x-2}$  |
| 17. $\sqrt{x+9}$  | 20. $\sqrt{x-20}$   | 23. $\sqrt{z^2+4}$ |
| 18. $\sqrt{3x-7}$ | 21. $\sqrt{y^2+14}$ | 24. $\sqrt{x-2}$   |

## Find the value that will make the expression a real number. (8.1)

- |                               |                              |                                |
|-------------------------------|------------------------------|--------------------------------|
| 25. $\sqrt{t^6}$              | 31. $\sqrt{\frac{64}{9}y^8}$ | 37. $\sqrt{169x^4}$            |
| 26. $\sqrt{(x+5)^4}$          | 32. $\sqrt{16t^2+24st+9t^2}$ | 38. $\sqrt{25x^2}$             |
| 27. $\sqrt{\frac{36}{49}x^6}$ | 33. $\sqrt{(-81c)^4}$        | 39. $\sqrt{\frac{81}{4}g^2}$   |
| 28. $\sqrt{(a+b)^6}$          | 34. $\sqrt{25x^2}$           | 40. $\sqrt{225x^6}$            |
| 29. $\sqrt{a^2-14ab+49b^2}$   | 35. $\sqrt{\frac{1}{64}a^4}$ | 41. $\sqrt{(-36c)^2}$          |
| 30. $\sqrt{(-x)^4}$           | 36. $\sqrt{144x^8}$          | 42. $\sqrt{\frac{16}{169}a^2}$ |

## Simplify. (8.1) Assume all variables to be nonnegative.

- |                           |                             |                           |                             |
|---------------------------|-----------------------------|---------------------------|-----------------------------|
| 43. $\sqrt{48}$           | 48. $\sqrt{4x^2-40x+50}$    | 53. $\sqrt{68m^9n^{11}}$  | 58. $\sqrt{28(x+y)}$        |
| 44. $\sqrt{54x^9}$        | 49. $\sqrt{125}$            | 54. $\sqrt{8a^2+56a+98}$  | 59. $\sqrt{63a^2b^4c^6}$    |
| 45. $\sqrt{96z}$          | 50. $\sqrt{52y^6}$          | 55. $\sqrt{150}$          | 60. $\sqrt{175wy^2}$        |
| 46. $\sqrt{32a^{15}}$     | 51. $\sqrt{72x^8y^7z^{14}}$ | 56. $\sqrt{147g^{10}h^5}$ | 61. $\sqrt{40y^{19}}$       |
| 47. $\sqrt{20a^5b^{10}c}$ | 52. $\sqrt{90(a+b)^{15}}$   | 57. $\sqrt{180b^6c^{14}}$ | 62. $\sqrt{18b^{16}c^{15}}$ |

## Multiply and simplify. (8.2)

- |   |                                       |   |
|---|---------------------------------------|---|
| 63. $(\sqrt{8})(\sqrt{5})$              | 69. $(\sqrt{60ab^5})(\sqrt{50a^8b})$  | 74. $(\sqrt{50x^{17}y^8z^3})(\sqrt{11x^2y^8z^6})$ |
| 64. $(\sqrt{14})(\sqrt{6})$             | 70. $(\sqrt{2m^4n^9})(\sqrt{44mn^7})$ | 75. $(\sqrt{28x^9})(\sqrt{20x^5})(\sqrt{5x^9})$   |
| 65. $(\sqrt{7})(\sqrt{6})(\sqrt{90})$   | 71. $(\sqrt{15a^4b^3})(\sqrt{8ab})$   | 76. $(\sqrt{18y^7})(\sqrt{12y^5})(\sqrt{2y^3})$   |
| 66. $(\sqrt{9})(\sqrt{70})(\sqrt{3})$   | 72. $(\sqrt{12ab})(\sqrt{14a^7b^5})$  | 77. $(\sqrt{4c^4})(\sqrt{2c^2})(\sqrt{9c^7})$     |
| 67. $(\sqrt{y})(\sqrt{48})(\sqrt{y^4})$ | 73. $(\sqrt{13a})(\sqrt{27ab})$       | 78. $[\sqrt{6(x-8)}][\sqrt{2(x-8)^3}]$            |
| 68. $(\sqrt{z})(\sqrt{z+8})$            |                                       |   |

**Divide and simplify. (8.2)**

- |                                 |                                     |                                 |                                  |                                    |                                   |
|---------------------------------|-------------------------------------|---------------------------------|----------------------------------|------------------------------------|-----------------------------------|
| 1. $\frac{\sqrt{40}}{\sqrt{8}}$ | 4. $\frac{\sqrt{18x^3}}{\sqrt{2x}}$ | 7. $\sqrt{\frac{54}{8a}}$       | 10. $\frac{\sqrt{5}}{\sqrt{7}}$  | 13. $\frac{\sqrt{60}}{\sqrt{98}}$  | 16. $\sqrt{\frac{y^6}{56}}$       |
| 2. $\sqrt{\frac{8}{x}}$         | 5. $\sqrt{\frac{14x^2}{7y^7}}$      | 8. $\sqrt{\frac{c}{d^6}}$       | 11. $\sqrt{\frac{1}{b}}$         | 14. $\sqrt{\frac{30x^5y}{12xy^9}}$ | 17. $\frac{\sqrt{3d}}{\sqrt{7d}}$ |
| 3. $\sqrt{\frac{9x^6}{4y^8}}$   | 6. $\frac{\sqrt{96}}{\sqrt{28}}$    | 9. $\sqrt{\frac{72a^3}{32b^9}}$ | 12. $\frac{\sqrt{80}}{\sqrt{5}}$ | 15. $\sqrt{\frac{81}{27b}}$        | 18. $\sqrt{\frac{150}{90a}}$      |

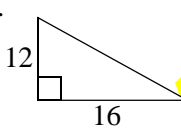

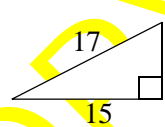
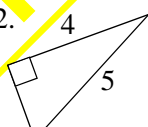
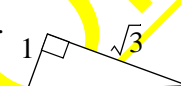
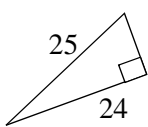
**Add or subtract. (8.2)**

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|--|--|
| 19. $\sqrt{4x-12} + \sqrt{9x-27} - \sqrt{16x-48} - \sqrt{x-3}$   | 23. $8ab\sqrt{a^2b} - 3a\sqrt{a^2b^3} + 7\sqrt{b^3} - 2b\sqrt{b}$        |
| 20. $3y\sqrt{8y-16} - y\sqrt{2y-4} + 7y\sqrt{18y-36}$            | 24. $9x\sqrt{28} - 3x\sqrt{63} + 3x\sqrt{112} - 5x\sqrt{7} + \sqrt{175}$ |
| 21. $3b\sqrt{a^3b} - a\sqrt{ab^3} + ab\sqrt{ab} - 7b\sqrt{a^3b}$ | 25. $t^2\sqrt{s^2t} + t^2\sqrt{s^2t} + t^2\sqrt{s^2t} + t\sqrt{s^2t^3}$  |
| 22. $\sqrt{x^3+x^1} - \sqrt{4x^3+4} + 4\sqrt{25x^3+25}$          | 26. $13\sqrt{16x-20} - 25\sqrt{36x-45}$                                  |

**Solve. (8.3)**

- |                                  |                                     |                                   |
|----------------------------------|-------------------------------------|-----------------------------------|
| 27. $\sqrt{x} = 7$               | 34. $\sqrt{20x-12} = \sqrt{11x+24}$ | 41. $\sqrt{b} = -3$               |
| 28. $\sqrt{3x} + 6 = 12$         | 35. $8\sqrt{y-4} = 14\sqrt{y-9}$    | 42. $\sqrt{2x} - 13 = 5$          |
| 29. $\sqrt{2x-9} = \sqrt{6x-11}$ | 36. $\sqrt{x} = 16$                 | 43. $\sqrt{12x-3} = \sqrt{4x+13}$ |
| 30. $6\sqrt{y-1} = 3\sqrt{8-y}$  | 37. $\sqrt{12a-34} = -7$            | 44. $7\sqrt{y-5} = 9\sqrt{3-y}$   |
| 31. $\sqrt{x} = -5$              | 38. $\sqrt{13y-3} = \sqrt{11y+5}$   | 45. $\sqrt{m} = 81$               |
| 32. $\sqrt{7a} + 20 = 13$        | 39. $5\sqrt{a-7} = 9\sqrt{a-12}$    | 46. $\sqrt{15p} + 21 = 96$        |
| 33. $\sqrt{4x-1} = \sqrt{2x+7}$  | 40. $\sqrt{a} = 5$                  | 47. $\sqrt{8n-1} = \sqrt{n+13}$   |

**Find the missing side. (8.4)**

- |   |   |                                    |                              |
|---|---|------------------------------------|------------------------------|
| 48.  | 51.  | 54. $a = 14, b = 48$               | 62. $b = \sqrt{90}, c = 38$  |
| 49.  | 52.  | 55. $a = 8, b = 8$                 | 63. $a = 7, c = 7\sqrt{2}$   |
| 50.  | 53.  | 56. $a = \sqrt{15}, b = 12$        | 64. $b = \sqrt{70}, c = 55$  |
|   |   | 57. $b = 11, c = 17$               | 65. $a = 180, b = 180$       |
|   |   | 58. $a = 4, c = 18$                | 66. $a = 14, c = 50$         |
|   |   | 59. $b = 4\sqrt{3}, c = 5\sqrt{3}$ | 67. $b = 12, c = \sqrt{500}$ |
|   |   | 60. $a = \sqrt{8}, b = 13$         | 68. $a = 24, c = 51$         |
|   |   | 61. $a = \sqrt{5}, b = \sqrt{5}$   | 69. $a = 70, c = 250$        |

**Find the distance from point A to point B. (8.5)**

- |                       |                       |                       |                       |
|-----------------------|-----------------------|-----------------------|-----------------------|
| 70. A(2,2) B(8,2)     | 74. A(-4,6) B(4,-9)   | 78. A(0,4) B(22,18)   | 82. A(7,6) B(-23,0)   |
| 71. A(-8,7) B(9,-2)   | 75. A(-9,-8) B(-2,5)  | 79. A(-4,-5) B(8,8)   | 83. A(42,64) B(32,76) |
| 72. A(3,-4) B(-11,-8) | 76. A(-3-2) B(-8,-8)  | 80. A(0,0) B(-13,-7)  | 84. A(0,4) B(42,60)   |
| 73. A(-11,5) B(5,-17) | 77. A(-15,14) B(-2,0) | 81. A(8,14) B(-5,-11) | 85. A(110,250) B(4,4) |