

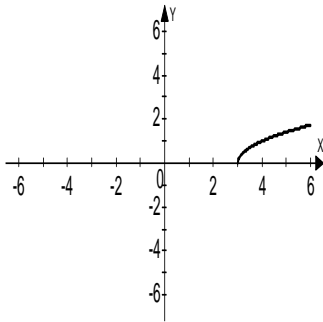
Additional Exercises Answers

9.1 Form I

1. 7 2. -7 3. Not a real number 4. 11 5. $\frac{1}{4}$ 6. $-\frac{1}{5}$ 7. 0.5 8. 5 9. 11 10. 4
11. 2 12. -2 13. 4 14. 1 15. 4 16. Not a real number 17. 3.162 18. 4.583
19. 7.449 20. 2.236

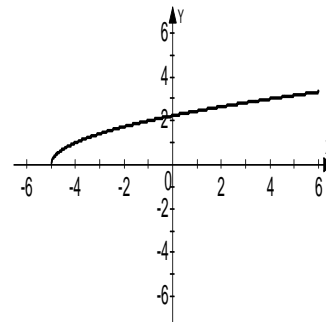
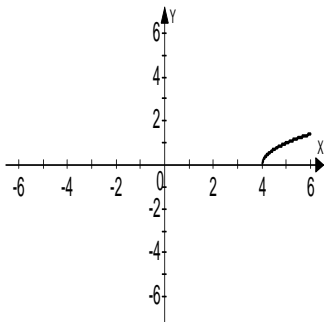
9.1 Form II

1. 5 2. Not a real number 3. -11 4. $\frac{1}{2}$ 5. $\frac{2}{3}$ 6. 0.9 7. 6 8. Not a real number 9. 1
10. -3 11. -2 12. -2 13. 5 14. 5 15. -10 16. 5.099 17. 6.403 18. 4.359 19. 2.551
20.



9.1 Form III

1. Not a real number 2. -8 3. -4 4. Not a real number 5. 6 6. 2 7. 6 8. -5 9. 1
10. Not a real number 11. -2 12. -5 13. $\frac{1}{3}$ 14. $\frac{2}{3}$ 15. 7.141 16. 11.091 17. 6.481
18. 2.384
19. 20.



9.2 Form I

1. $2\sqrt{7}$ 2. $2\sqrt{10}$ 3. $4\sqrt{3}$ 4. $3\sqrt{6}$ 5. Cannot be simplified 6. $6\sqrt{2}$ 7. $2x\sqrt{3}$
8. $3y^3\sqrt{5}$ 9. $2\sqrt[3]{3}$ 10. $3\sqrt[3]{2}$ 11. $2\sqrt[4]{3}$ 12. $\sqrt{30}$ 13. 10 14. $3x\sqrt{2}$ 15. $5y\sqrt{2}$
16. $\frac{2}{5}$ 17. $\frac{\sqrt{10}}{5}$ 18. 5 19. $\frac{\sqrt{15}}{2}$ 20. $\sqrt{10}$

9.2 Form II

1. $2\sqrt{11}$ 2. $7\sqrt{2}$ 3. $6\sqrt{5}$ 4. $2x^2\sqrt{5}$ 5. Cannot be simplified 6. $11\sqrt{a}$ 7. $3y^5\sqrt{2}$
8. $2\sqrt[3]{7}$ 9. $3xy^2\sqrt[3]{4}$ 10. $3\sqrt[4]{3x^2y^3}$ 11. $7\sqrt{3}$ 12. $3\sqrt{6}$ 13. $18x$ 14. $xy\sqrt{14}$ 15. $\frac{\sqrt{10}}{4}$
16. 3 17. $\frac{5\sqrt{2}}{8}$ 18. 2 19. $2\sqrt{2x}$ 20. $\frac{2x\sqrt{5}}{7}$

9.2 Form III

1. $5\sqrt{5}$ 2. $2\sqrt{13}$ 3. $6\sqrt{6}$ 4. Cannot be simplified 5. $10a^6\sqrt{5}$ 6. $3xy^2\sqrt[3]{5}$ 7. $5\sqrt[3]{5b^2}$
8. $3a^2b\sqrt{10ab}$ 9. $2x^3\sqrt[4]{4}$ 10. $2\sqrt[5]{3a^4}$ 11. $2x+3y$ 12. $3x^2\sqrt{5}$ 13. $6y^3\sqrt{2}$ 14. $18xy$
15. $2\sqrt[3]{6m^2}$ 16. $3a^4\sqrt{4}$ 17. $\sqrt{5}$ 18. $\frac{\sqrt{39}}{9}$ 19. $5x$ 20. $\frac{2\sqrt[3]{2}}{3}$ 21. $2\sqrt[3]{2}$ 22. $4x^2$

9.3 Form I

1. $8\sqrt{6}$ 2. $2\sqrt{5}$ 3. $2\sqrt{7}$ 4. $-4\sqrt{10}$ 5. $6\sqrt{11y}$ 6. Cannot be combined 7. $13\sqrt{14}$
8. $5\sqrt{21}$ 9. $18\sqrt{2}$ 10. 0 11. $10\sqrt{10x}$ 12. Cannot be combined 13. $6\sqrt{3}-6\sqrt{5}$
14. $3\sqrt{2}-3$ 15. $8+4\sqrt{3}+2\sqrt{2}+\sqrt{6}$ 16. $10-2\sqrt{5}$ 17. 3 18. 10 19. $8+2\sqrt{15}$
20. $2-2\sqrt{2x}+x$

9.3 Form II

1. $11\sqrt{10}$ 2. $7\sqrt{x}$ 3. $2\sqrt{6}$ 4. $-\sqrt{3xy}$ 5. 0 6. $12\sqrt{11x}$ 7. $-3\sqrt{21ab}$ 8. $22\sqrt{3}$
9. $3\sqrt{11x}$ 10. $3y\sqrt{2y}$ 11. $14xy^2\sqrt{5x}$ 12. $17a\sqrt{3ab}$ 13. $8\sqrt{3}-3$ 14. $2\sqrt{5}-5$
15. $6-3\sqrt{2}$ 16. $10-5\sqrt{10}+2\sqrt{5}-5\sqrt{2}$ 17. 4 18. $12\sqrt{3}-6+6\sqrt{7}-\sqrt{21}$ 19. $6-2\sqrt{55}$
20. $168+32\sqrt{5}$

9.3 Form III

1. $-6\sqrt{17}$ 2. $4\sqrt{y}$ 3. $24\sqrt{5}$ 4. $12x\sqrt{2y}$ 5. $6\sqrt{3ab}$ 6. Cannot be combined
7. $17xy\sqrt{xy}$ 8. $20\sqrt{2}$ 9. $10\sqrt{3}$ 10. $4\sqrt{3}$ 11. $15a\sqrt{2}$ 12. $15x^2y^2\sqrt[3]{y}$ 13. $5-5\sqrt{2}$
14. $3x\sqrt{6}$ 15. $30-9\sqrt{6}$ 16. $\sqrt{30}-5+3\sqrt{2}-\sqrt{15}$ 17. $27\sqrt{2}-36\sqrt{3}+12\sqrt{6}-48$
18. -122 19. $25-10\sqrt{6}$ 20. $216+96\sqrt{2}$

9.4 Form I

1. $\frac{\sqrt{5}}{5}$ 2. $\frac{2\sqrt{3}}{3}$ 3. $\frac{\sqrt{6}}{2}$ 4. $\frac{\sqrt{10}}{2}$ 5. $\frac{\sqrt{15}}{5}$ 6. $\frac{\sqrt{7}}{7}$ 7. $\frac{\sqrt{30}}{10}$ 8. $\frac{\sqrt{2}}{4}$ 9. $\frac{\sqrt{3}}{6}$ 10. $\frac{\sqrt{6}}{12}$
 11. $\frac{\sqrt{15}}{6}$ 12. $\frac{\sqrt{14}}{6}$ 13. $\sqrt{5}$ 14. $\frac{3\sqrt{10}}{4}$ 15. $\frac{\sqrt{6}}{10}$ 16. $\frac{5+\sqrt{3}}{22}$ 17. $\frac{18-6\sqrt{2}}{7}$
 18. $\frac{50+5\sqrt{6}}{47}$ 19. $\frac{5\sqrt{5}-5\sqrt{3}}{2}$ 20. $4\sqrt{6}+4\sqrt{5}$

9.4 Form II

1. $\frac{\sqrt{6}}{3}$ 2. $\frac{\sqrt{6}}{6}$ 3. $\frac{\sqrt{15}}{5}$ 4. $\frac{4\sqrt{10}}{5}$ 5. $\frac{\sqrt{15}}{5}$ 6. $\frac{\sqrt{66}}{11}$ 7. $\frac{2\sqrt{7}}{7}$ 8. $\frac{3\sqrt{2}}{4}$ 9. $\frac{\sqrt{5}}{2}$
 10. $\frac{\sqrt{2}}{8}$ 11. $\frac{\sqrt{42}}{12}$ 12. $\frac{5\sqrt{2}}{8}$ 13. $\frac{2\sqrt{15}}{15}$ 14. $\frac{\sqrt{66}}{22}$ 15. $-4+2\sqrt{5}$ 16. $\frac{24+3\sqrt{6}}{58}$
 17. $\sqrt{6}+\sqrt{2}$ 18. $3\sqrt{5}-3\sqrt{3}$ 19. $6-3\sqrt{3}+2\sqrt{2}-\sqrt{6}$ 20. $\frac{5\sqrt{6}+5\sqrt{3}+3\sqrt{2}+3}{3}$

9.4 Form III

1. $\frac{3\sqrt{10}}{5}$ 2. $\sqrt{5}$ 3. $2\sqrt{3}$ 4. $\frac{\sqrt{21}}{7}$ 5. $\sqrt{6x}$ 6. $\frac{\sqrt{10xy}}{5xy}$ 7. $\frac{3\sqrt{5}}{10}$ 8. $\frac{\sqrt{3}}{6}$ 9. $\frac{\sqrt{6}}{4}$
 10. $\frac{\sqrt{7}}{7}$ 11. $\frac{\sqrt{5}}{4}$ 12. $\frac{\sqrt{10x}}{12x^2}$ 13. $\frac{2\sqrt{y}}{3y^2}$ 14. $\frac{\sqrt{15ab}}{10ab^3}$ 15. $\frac{48+8\sqrt{5}}{31}$ 16. $\frac{49-7\sqrt{5}}{22}$
 17. $\frac{\sqrt{30}+3\sqrt{2}}{2}$ 18. $\frac{5\sqrt{2}-\sqrt{15}}{7}$ 19. $2\sqrt{3}+\sqrt{6}$ 20. $\frac{3\sqrt{15}+11}{2}$

9.5 Form I

1. {49} 2. {361} 3. {7} 4. \emptyset 5. {21} 6. $\left\{-\frac{3}{2}\right\}$ 7. {5} 8. \emptyset 9. {4} 10. {-16}
 11. {-2, 1} 12. {5} 13. 31 14. 46.5 feet per second 15. 37.8 mph

9.5 Form II

1. {225} 2. {85} 3. {121} 4. {-45} 5. \emptyset 6. {25} 7. {5} 8. {8} 9. {12} 10. {20}
 11. {2} 12. {-4} 13. 21 14. 43.8 feet per second 15. 45.5 mph

9.5 Form III

1. {252} 2. \emptyset 3. {19} 4. \emptyset 5. {3} 6. {9} 7. {-6} 8. {1} 9. {6} 10. {4}
 11. {-4} 12. 35 ft. 13. 76.8 km. 14. 160 ft. 15. 16 and 11

9.6 Form I

1. 6 2. 8 3. 1 4. 2 5. 2 6. $\frac{1}{6}$ 7. $\frac{1}{2}$ 8. 5 9. -6 10. 64 11. 9 12. $\frac{1}{9}$ 13. -2
14. 125 15. 2 16. 1 17. $\frac{2}{5}$ 18. 2 19. 2 20. 8

9.6 Form II

1. 11 2. 5 3. 4 4. -2 5. $\frac{1}{2}$ 6. -8 7. $-\frac{1}{8}$ 8. 27 9. 27 10. $\frac{1}{8}$ 11. $\frac{7}{2}$ 12. 16
13. $\frac{1}{27}$ 14. $\frac{3}{5}$ 15. -27 16. $\frac{1}{3}$ 17. $-\frac{1}{5}$ 18. 7 19. 2 20. 116

9.6 Form III

1. 2 2. -3 3. 27 4. 9 5. 9 6. $\frac{1}{4}$ 7. $\frac{1}{343}$ 8. $\frac{121}{36}$ 9. 16 10. 6 11. $\frac{9}{14}$ 12. 6
13. 27 14. 2 15. $\frac{1}{7}$ 16. -48 17. 117 18. 26 19. 11% 20. \$5.09 million