

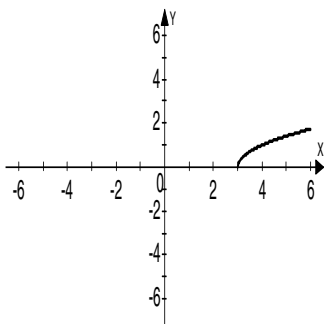
## Additional Exercises Answers

### 8.1 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

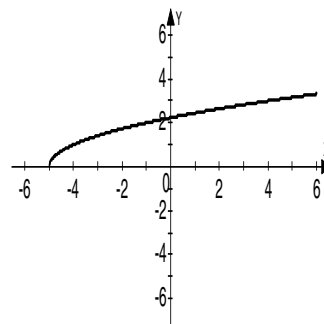
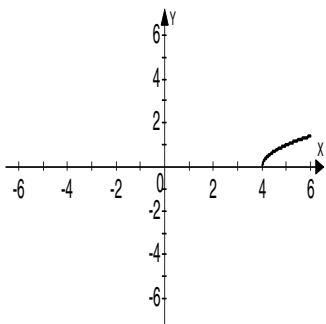
### 8.1 Form II

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.



### 8.1 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.



### 8.2 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.  $\sqrt{10}$

### 8.2 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.  $\frac{2x\sqrt{5}}{7}$

### 8.2 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.  $4x^2$

### 8.3 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.  $2-2\sqrt{2x}+x$

### 8.3 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.  $168+32\sqrt{5}$

### 8.3 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.  $216+96\sqrt{2}$

**8.4 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.  $4\sqrt{6}+4\sqrt{5}$

**8.4 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.  $\frac{5\sqrt{6}+5\sqrt{3}+3\sqrt{2}+3}{3}$

**8.4 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.  $\frac{3\sqrt{15}+11}{2}$

**8.5 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

**8.5 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

**8.5 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

**8.6 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

**8.6 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

**8.6 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