

## Chapter 5 answers

### 5.1

- all real numbers except  $x \neq 0$
- all real numbers except  $x \neq -\frac{4}{3}$
- all real numbers except  $x \neq 1$  and  $x \neq -\frac{3}{2}$
- all real numbers except  $x \neq 2$  and  $x \neq 3$
- $\frac{3}{8}$
- $\frac{x+1}{x-1}$
- $\frac{1}{x+2}$
- $\frac{y^2}{x}$
- $\frac{1}{2b}$
- $\frac{3y}{5x}$
- $\frac{x-1}{x+9}$
- $\frac{x-1}{x+8}$
- $-\frac{1}{4+x}$
- $-\frac{10}{x}$
- $\frac{x+1}{2x+3}$
- $\frac{x}{x+9}$
- $\frac{x+8}{x+7}$
- $-\frac{1}{x+9}$
- $\frac{x}{2}$
- $\frac{x-1}{2(x+1)}$
- $-\frac{1}{2(x+y)}$
- $\frac{2a-b}{3a(3a+2b)}$

### 5.2

- $3x^2y$
- $\frac{5ab^2}{6}$
- $\frac{x+3}{2x^2(x+6)}$
- $-\frac{3a}{2}$
- $2(x+4)$
- $x-7$
- $\frac{1}{x+7}$
- $\frac{1}{x-5y}$
- $\frac{27b(x+3)}{2a(x+4)}$
- $\frac{x(x+4)}{y(x-5)}$
- $\frac{1}{(y-1)^2}$
- 1
- $\frac{2x^2}{3y^2}$
- $\frac{2n^4}{m^2}$
- $\frac{a(a-b)}{4b^3}$
- $\frac{x+2}{6}$
- $-\frac{2(x+5)^2}{(x-4)^2}$
- $\frac{(x-6)(x-1)}{(x+4)(x-3)}$
- $\frac{1}{x-4}$
- $\frac{x+6y}{x+7y}$
- 1
- $\frac{3}{4}$
- $\frac{3(x-2)}{x-8}$
- $\frac{3}{4y(x+4)}$
- $\frac{x(x+4)}{6(x-8)}$
- $3x$
- $\frac{y^4}{4}$

### 5.3

- $\frac{11}{x}$
- $-\frac{1}{x^2y}$
- $\frac{x+5}{x-2}$
- $\frac{1}{x+1}$
- 2
- $\frac{1}{b+8}$
- 1
- $\frac{2(x-8)}{x-4}$
- $\frac{x-10}{x-18}$
- $\frac{x}{y+9}$
- $\frac{1}{x+3y}$
- $\frac{x-10y}{6x-11y}$
- $\frac{(x-2)(x-4)}{(x-7)(x+2)}$
- $\frac{2(x-9)(x+6)}{(x+5)(x-4)}$
- 0
- 10x
- $9x^2y^2$
- $12(x+5)(x+2)$
- $(a+3)(a-3)(a+7)$
- $(x+4)(x-2)$
- $(x+3)^2(x+5)$
- $(x+4)(x+8)(x-4)^2$
- $(a+7b)^2(a+8b)^2$
- $2x(x-3y)(x-4y)$
- $2x^2y(3xy-2)(xy-1)^2$

### 5.4

- 3
- $y+11$
- 9
- $\frac{x-7}{x+6}$
- $\frac{x-4}{x}$
- $\frac{8x+7}{(x-6)(x+5)}$
- $\frac{5}{x-3}$
- $\frac{-x+7}{(x+4)(x-2)}$
- $\frac{2(x^2+2x-32)}{(x-8)(x-2)}$
- $\frac{(3x-2)(2x-5)}{(x-4)(x+2)}$
- $\frac{3x^2-14x-10}{(x+2)(x-3)}$
- $\frac{x^2-7x-12}{(x-3)^2(x+3)}$
- $\frac{x-1}{x(x+2)}$
- $\frac{x+12}{(x+9)(x+8)}$
- $\frac{12}{(x-5y)(x+8y)}$
- $\frac{2x}{(x-3)(x+5)}$
- $\frac{17}{(x-8)(x+9)}$
- $\frac{2(x+8)}{(x+2)(x+5)}$
- $\frac{2(x-3)}{x+3}$
- $\frac{x-3}{x+2}$
- $\frac{x^2-2x+5}{(x+1)(x-1)}$
- $\frac{-2(x^2+18x-1)}{(x-3)(x+3)}$
- $\frac{(x+1)^2}{(x-2)(x-1)}$
- $\frac{x^2-4xy+3y^2+2x-8y-1}{(x-3y)(x-4y)}$
- $\frac{x^2-5x-8}{(2x-1)(3x+2)(x+2)}$

### 5.5

- $\frac{17}{2}$
- $\frac{180}{133}$
- $\frac{6}{z}$
- $\frac{-2x-3}{3x+13}$
- $\frac{2(5x-4)}{6x-1}$
- $\frac{4x}{x-2}$
- $-\frac{6(x-3)}{x+3}$
- $\frac{12}{x+9}$
- $\frac{18}{x+6}$
- $\frac{16}{x+4}$
- $\frac{7x-20}{3x-2}$
- $-\frac{x-2}{3}$
- $\frac{x^2+5x+15}{-x^2+10}$
- $\frac{(x-8)(x-1)(x+1)}{x^2(x-2)(x+2)}$
- $\frac{x-6}{x-8}$
- $\frac{x-7}{x-2}$
- $\frac{y-2}{y+1}$
- $\frac{-2}{x^2-3x-7}$
- $\frac{-x+5}{(x+1)^2}$
- $-\frac{1}{x(x+h)}$
- $-\frac{1}{(x+2)(x+h+2)}$
- $\frac{-2x-h+2}{(x-1)^2(x+h-1)^2}$

**5.6**

1. {12}      3. {18}      5.  $\left\{-\frac{13}{12}\right\}$       7. {6}      9. {2, 7}      11.  $\left\{-\frac{17}{10}\right\}$   
 13. {5}      15. {-2, 4}      17.  $\left\{\frac{7}{3}\right\}$       19. {4}      21.  $\left\{\frac{5}{9}\right\}$       23. {3}  
 25. {9}      27. {1}      29. No Solution      31. {-3, 6}      33. {-2}  
 35. {-1}      37. {2}      39. {4}      41. {-4, 15}      43. {2}      45.  $\left\{-\frac{7}{2}, 15\right\}$   
 47. {-3, 20}      49. {-1, 15}

**5.7**

1.  $w = \frac{A}{l}$       3.  $h = \frac{V}{2\pi r^2}$       5.  $h = \frac{A-2\pi r^2}{2\pi r}$       7.  $m = \frac{y-y_1}{x-x_1}$       9.  $c = \frac{L-a}{at}$       11.  $c = \frac{N-a-2b}{bt}$   
 13.  $d = \frac{s-a}{n-1}$       15.  $C = \frac{N}{1-r}$       17.  $a = \frac{3L}{ct+1}$       19.  $x = y$       21.  $R = \frac{E-LK}{L}$       23.  $a = \frac{rb}{b+r}$   
 25.  $x = \frac{y}{1-yz}$       27.  $B = \frac{C}{AC-1}$       29.  $x = \frac{AB-4A}{2B}$       31.  $C = \frac{2AB-A}{2B}$       33.  $x = y + 2z$   
 35.  $a = \frac{bc-3b-3c}{6c}$

**5.8**

1. 6 min      3. 6 hrs      5. 36 min      7. 30 hrs      9.  $5\frac{5}{6}$  hrs      11. 8 min  
 13. Don: 6 hrs, MaryAnn: 12 hrs      15. 12 hrs      17. Scott: 8 hrs, Patty: 24 hrs  
 19. 11 hrs      21. 280 seconds, or 4 minutes 40 seconds      23. 18 hrs      25. 6 mph  
 27. Tim: 50 mph, Eric: 80 mph      29. 80 mph      31. Jeff: 7 mph, Jon: 6 mph  
 33. 20 kmph      35. 50 mph      37. 16.7 mph      39. 15 mph      41. 500 mph      43. 20 mph  
 45. 2 mph      47. 60 mph      49. 6 mph