

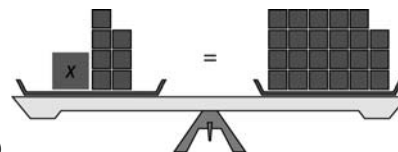
Chapter 11 MathLinks 7

Student Resource Answers

11.1 Expressions and Equations, pages 393-394

3. a) expression; $x + 6$
 b) equation; $2x + 2 = 8$
 c) expression; $4x - 3$
 d) equation; $3x + 3 = 6$
4. a) variable: x ; constant: 6
 b) numerical coefficient: 2; variable: x ; constant: 2, 8
 c) numerical coefficient: 4; variable: x ; constant: 3
 d) numerical coefficient: 3; variable: x ; constant: 3, 6
5. a) $x - 8$, expression; variable: x , constant: 8
 b) $3x + 2$, expression; numerical coefficient: 3, variable: x , constant: 2
 c) $x - 2 = 8$, equation; variable: x , constant: 2, 8
6. a) $2x + 3 = 7$, equation; numerical coefficient: 2, variable: x , constant: 3, 7
 b) $7 + 2x$, expression; numerical coefficient: 2, variable: x , constant: 7
 c) $15 = 5 + 2x$, equation; numerical coefficient: 2, variable: x , constant: 5, 15
7. a) $x + 7$, 11; $x + 7 = 11$
 b) $2x - 3$, 5; $2x - 3 = 5$
 c) 6, $1 + 5x$; $6 = 1 + 5x$
8. a) $x - 4$, 5; $x - 4 = 5$
 b) $6 + 3x$, 9; $6 + 3x = 9$
 c) 12, $4x - 4$; $12 = 4x - 4$
9. a) $b + 12$ b) $t - 5$ c) $a - 52$
10. a) $3n - 9$ b) $\frac{f}{5} + 4$ c) $8(g - 5)$ d) $\frac{h}{8} - 12$
11. a) $2a + 4 = 30$ b) $\frac{m}{2} = 25$ c) $4h = 600$
12. a) three times a number minus six
 b) six times a number plus eight
 c) six times the result of a number minus 3
 d) nine more than the product of two and a number
13. a) $2x + 2$; $3 + x$ b) $2x + 2 = 3 + x$
14. a) 12; $4 + 2m$ b) Use Guess and Check: Try $m = 4$; $12 = 4 + 2(4)$; $12 = 4 + 8$; $12 = 12$






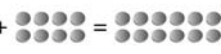
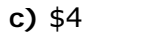
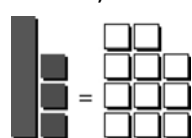
15. a)



b)

represents the amount of money that Duncan has now. d) \$16. Use Guess and Check to find the answer.

11.2 Solve One-Step Equations: $x + a = b$, pages 399-401

4. a) $z = -3$ b) $g = 7$ c) $n = 12$ d) $k = 3$
 5. a) $b = 3$ b) $r = 80$ c) $w = 12$ d) $h = 2$
 6. a) 3 b) 8 c) 4
 7. a) 3 b) 6 c) 7
 8. a)  -  =  b) $x - 10 = 2$
 c) 12
9. a) $g = 6$ b) $w = 0$ c) $k = 16$ d) $p = 25$
 10. a) $m = 2$ b) $k = -5$ c) $p = 24$ d) $x = 1$
 11. a) The money that Charles has in his pocket; this value is unknown. b) \$16
 12. a) $x = 5$ is a solution to the equation, $5 + 10 = 15$
 b) $x = 5$ is not a solution to the equation, $10 - 5 \neq 15$
 c) $x = 5$ is a solution to the equation, $5 - 7 = -2$
 d) $x = 5$ is not a solution to the equation, $42 \neq 37 - 5$
13. a)  b) 12
 c) $m = 9$
14. a)  +  =  c) \$4
 $t + 8 = 12$
15. a) $k - 12 = 48$ b) 60 km/h
 16. a) $c + 15 = 25$ b) 10 years
 17. a) $e - 24 = 86$ b) 110 medals
 18. 5 binders; $3x + 5 = 20$
 19. a)  b) $x + 3 = -11$ c) -14
 d) Answers may vary. It is difficult to represent negative numbers on a scale.

20. a) No. The sum of his age and years of employment is 73, which is less than 85.
b) 54 years old
21. a) $j + 48 = 188$ b) 140 decibels
c) $\frac{j}{10} = w$; When $j = 140$, $w = 14$;
14 decibels
22. a) $C = 3 + t$ b) \$7 c) 2 h

11.3 Solve One Step Equations: $ax = b$, $\frac{x}{a} = b$, pages 406–407

4. a) 3 b) 5 5. a) $x = 16$ b) $x = 18$
6. a) $r = 3$ b) $g = 8$ c) $d = 3$ d) $f = 2$
7. a) $p = 21$ b) $v = 25$ c) $c = 36$ d) $x = 28$
8. a) 6 b) 3 c) 11 d) 9
9. a) $r = 9$ b) $j = 25$ c) $g = 12$ d) $t = 3$
10. 7 h 11. a) 6 b) 4 c) 11 d) 4
12. a) $u = 44$ b) $c = 156$
c) $w = 108$ d) $x = 0$
13. 36 h
14. a) Yes, $8 \times 3 = 24$ b) Yes, $10 \times 3 = 30$
c) No, $7 \times 3 \neq 35$ d) No, $48 \neq 12 \times 3$
15. a) Yes, $1 = 8 \div 8$ b) No, $8 \div 4 \neq 16$
c) Yes, $4 = 8 \div 2$ d) No, $8 \div 2 \neq 16$
16. a) $300t = 6000$ b) 20 min
17. a) $\frac{b}{2} = 21$ b) 42 years old
18. \$165 19. 7 cm
20. a) $w + w + 2w + 2w = 240$ b) $6w = 240$
c) $w = 40$ m; $l = 80$ m
21. 5 pencils each



11.4 Solve Two-Step Equations: $ax + b = c$, pages 411–413

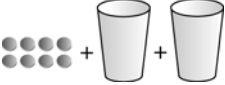
4. a) $x = 8$ b) $n = 3$ 5. a) $n = 4$ b) $n = 5$
6. a) $x = 1$ b) $x = 3$
7. a) $s = 2$ b) $k = 3$ c) $n = 2$ d) $w = 4$
8. \$4
9. a) Add 2. b) Subtract 3.
c) Subtract 10. d) Add 5.
10. a) Divide by 6. b) Divide by 3.
c) Divide by 2. d) Divide by 9.
11. a) $r = 2$ b) $m = 1$ c) $g = 2$ d) $f = 7$
12. a) $k = 4$ b) $x = 3$ c) $n = 2$ d) $n = 4$
13. 15 DVDs
14. a) No, $8(6) + 8 \neq 25$
b) Yes, $3 + 7(6) = 45$
c) No, $58 \neq 10(6) - 1$
d) No, $48 \neq 3(6) + 12$

15. a) $r = 9$ b) $y = 20$ c) $g = 9$ d) $p = 6$
16. a) C is the cost for one day at camp; s is number of students. b) 20 students
17. a) $54 = 2p + 6$ b) \$24 18. 6
19. Answers will vary. For example:
a) $2x + 4 = 16$ b) $x = 6$
c) $x = 4$
d) No. Following a different order of operations resulted in a different answer.
e) Substitute the value for the variable into the original equation and see if the left side equals the right side.
20. 23°C 21. a) 25 m/s b) 3 s

Chapter 11 Review, pages 414–415

1. add; multiply 2. equation

3. a)  b) 

4. a) variable: x ; constant: 3 b) variable: r ;
numerical coefficient: 2; constant: 3, 9
5. a) $x + 4$, 6; $x + 4 = 6$
b) $2x - 3$, 9; $2x - 3 = 9$
6. a) $3k - 1 = 22$ b) $\frac{h}{2} = 75$
7. a)  b) 14

8. a) 5 counters b) 7 counters 9. $x = 8$
10. a) $w = 2$ b) $f = 9$ c) $g = 20$ d) $b = 6$
11. a) $t = 28$ b) $y = 0$ c) $x = 5$ d) $p = 17$
12. a) $x + 10 = 24$ b) 14 medals
13. 6 14. $h = 12$
15. a) $\frac{x}{2} = 5$ b) $x = 10$
16. a) $r = 6$ b) $p = 32$ c) $w = 7$ d) $c = 66$
17. a) Divide by 3; $x = 4$ b) Divide by 4; $n = 4$
18. a) Multiply by 5; $v = 35$
b) Multiply by 11; $t = 132$
19. a) $\frac{r}{3} = 21$ b) 63 years old
20. a) $x = 6$ b) $x = 9$
21. a) $g = 12$ b) $x = 30$ c) $h = 7$ d) $p = 7$
22. 27 baseball cards; $2b + 21 = 75$

Chapter 11 Practice Test, pages 416–417

1. C 2. B 3. D 4. D 5. A

6. a) Add 4.

b) Divide both sides of the equation by 2.

7. a) b) 8

8. a) $b = 5$ b) $x = 16$ c) $x = 18$ d) $h = 38$ 9. $x = 24$ 10. $x = 4$ 11. 1412. a) C represents the cost for one day of the hiking trip; p represents the number of people on the hiking trip b) \$800c) $C = 800d$; C is the cost of the hiking trip and d is the number of days for the hiking tripd) $3200 = 800d$; 4 days13. a) $2x + 3 = 11$ b) $x = 4$; Subtract 3 from each side. Divide each side by 2.

c)

d) $x = 7$; Subtract 4 from each side. Divide each side by 3.14. a) $5r + 20 = 245$ b) $r = 45$ cm