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BLM 11–13

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)** $\frac{h}{8} - 12$

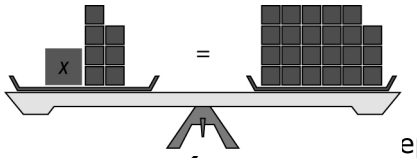
11. a) $2a + 4 = 30$ **b)** $\frac{m}{2} = 25$ **c)** $4h = 600$

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) epresents 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

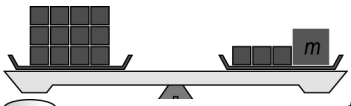
9. a) $g = 6$ **b)** $w = 0$ **c)** $k = 16$ **d)** $p = 25$

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

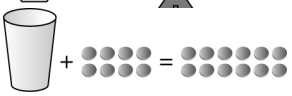
12. a) $x = 5$ is a solution to the equation, $5 + 10 = 15$
b) $x = 5$ is not a solution to the equation, $10 - 5 \neq 15$
c) $x = 5$ is a solution to the equation, $5 - 7 = -2$
d) $x = 5$ is not a solution to the equation, $42 \neq 37 - 5$

13. a)



b) 12
c) $m = 9$

14. a)



$t + 8 = 12$
c) \$4

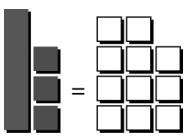
15. a) $k - 12 = 48$ **b)** 60 km/h

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.

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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

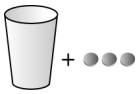
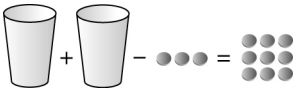
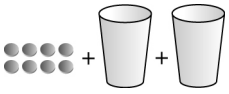
11.3 Solve One Step Equations: $ax = b$, $\frac{x}{a} = b$, pages 406–407

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; $2b + 21 = 75$

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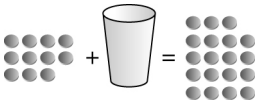
Chapter 11 Practice Test, pages 416–417

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

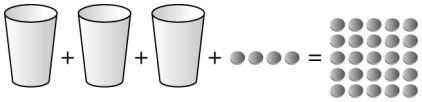
6. a) Add 4.
b) Divide both sides of the equation by 2.

7. a)  **b)** 8

8. a) $b = 5$ **b)** $x = 16$ **c)** $x = 18$ **d)** $h = 38$

9. $x = 24$ **10.** $x = 4$ **11.** 14

12. a) C represents the cost for one day of the hiking trip; p represents the number of people on the hiking trip **b)** $800
c) $C = 800d$; C is the cost of the hiking trip and d is the number of days for the hiking trip
d) $3200 = 800d$; 4 days

13. 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