Chapter 10 BLM Answers

BLM 10–1 Chapter 10 Math Link Introduction

1. $y = 3(5) + 2$, $y = 17$; $y = 3(1) + 2$, y = 5; $y = 3(20) + 2$, $y = 62$; $y = 3(8) + 2$, y = 26; $y = 3(5) + 2$, $y = 17$; $y = 3\ (18) + 2$; $y = 56$.
The encrypted form of *weather* is 71, 17, 5, 62, 26, 17, 56.

2.

Encrypted Form (y)	Number (x)	Letter
59	$59 = 3x + 2$ $59 - 2 = 3x - 2$ $57 = 3x$ $\frac{57}{3} = \frac{3x}{3}$ $19 = x$	19 = s
29	$29 = 3x + 2$ $29 - 2 = 3x - 2$ $27 = 3x$ $\frac{27}{3} = \frac{3x}{3}$ $9 = x$	9 = i
38	$38 = 3x + 2$ $38 - 2 = 3x - 2$ $36 = 3x$ $\frac{36}{3} = \frac{3x}{3}$ $12 = x$	12 = l
38	$38 = 3x + 2$ $38 - 2 = 3x - 2$ $36 = 3x$ $\frac{36}{3} = \frac{3x}{3}$ $12 = x$	12 = l
77	$77 = 3x + 2$ $77 - 2 = 3x - 2$ $75 = 3x$ $\frac{75}{3} = \frac{3x}{3}$ $25 = x$	25 = y

Password: silly

3. Answers will vary. Example: Password: guitar; Linear equation: $y = 2x - 3$

Letter	Number From Chart (x)	Encrypted Form $y = 2x - 3$
g	7	$y = 2(7) - 3$ $y = 14 - 3$ $y = 11$
u	21	$y = 2(21) - 3$ $y = 42 - 3$ $y = 39$
i	9	$y = 2(9) - 3$ $y = 18 - 3$ $y = 15$
t	20	$y = 2(20) - 3$ $y = 40 - 3$ $y = 37$
a	1	$y = 2(1) - 3$ $y = 2 - 3$ $y = -1$
r	18	$y = 2(18) - 3$ $y = 36 - 3$ $y = 33$

BLM 10–2 Chapter 10 Get Ready

1. a) 19 **b)** 23 **c)** 53
2. a) 494 cm^2 **b)** 408 cm^2 **c)** 396 cm^2
3. a) $p + 7 = 12$ **b)** $x - 3 = 11$
c) $4s = 28$ **d)** $\frac{k}{6} = 9$
4. a) \$5 **b)** 139 cm **c)** \$18 **d)** 25 min
5. a) $2n + 4 = 18$ **b)** $3x + 5 = 17$
c) $8y - 70 = 94$ **d)** $27 = 7q + 6$
6. a) $j = 8$ **b)** $t = 3$ **c)** $x = 3$ **d)** $p = 6$
7. 50 cm

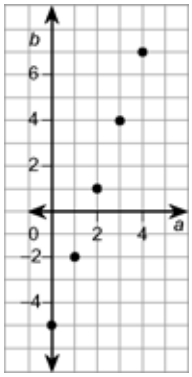
BLM 10–3 Chapter 10 Warm-Up

Section 10.1

1.

a	0	1	2	3	4
b	−5	−2	1	4	7

2.

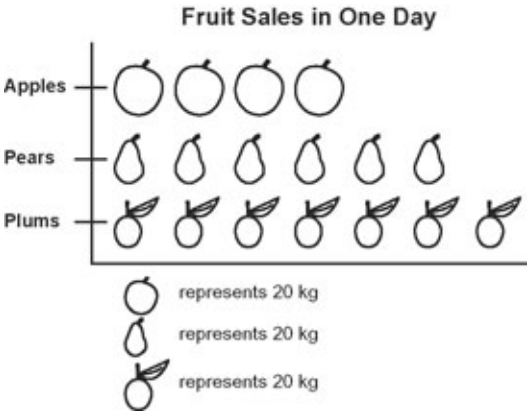


3. Yes, it is a linear relation. The difference in consecutive values of a is the same, and the difference in consecutive values of b is the same. Also, the points on the graph lie along a straight line.
4. $y = 15$ **5.** 17.5 km
6. $9 \times 1 = 9$, $-9 \times (-1) = 9$, $3 \times 3 = 9$, $-3 \times (-3) = 9$
7. $45 \div 1 = 45$, $45 \div (-1) = -45$,
$45 \div 3 = 15$, $45 \div (-3) = -15$,
$45 \div 5 = 9$, $45 \div (-5) = -9$,
$45 \div 9 = 5$, $45 \div (-9) = -5$,
$45 \div 15 = 3$, $45 \div (-15) = -3$,
$45 \div 45 = 1$, $45 \div (-45) = -1$
8. $6 \times 30 = 180$ cm^3
9. $(6 \times 20) + (6 \times 8) = 120 + 48 = 168$ cm^2
10. Answers may vary. Example: $9^2 = 81$, $10^2 = 100$, $\sqrt{95} \approx 9.7$

Section 10.2
1. $-3t = -12$ **2.** -3 **3.** $t = 4$ **4.** $b = 75$
5. Left Side $= \frac{-b}{5}$ Right Side $= -15$
$= \frac{-75}{5}$
$= -15$
Left Side = Right Side
6. Answers will vary. Example:
$r^2 = 64$, $64 \approx 60$, $60 \times 3 = 180$
$100 \times 80 + 80 \times 80 = 8000 + 6400$
$= 14\,400$ cm^3
7. $\frac{6}{20} = \frac{3}{10}$ **8.** $\frac{3}{2}$ **9.** 1 **10.** 14

Section 10.3
1. $z = 4$
2. Left Side $= 3z + 3$ Right Side $= 15$
$= 3(4) + 3$
$= 15$
Left Side = Right Side
3. a) Subtract 3 from both sides of the equal sign.
b) Add 6 to both sides of the equal sign.
4. a) $n = -5$
Left Side $= 28$ Right Side $= -5n + 3$
$= -5(-5) + 3$
$= 28$
Left Side = Right Side
b) $r = 18$
Left Side $= 3r - 6$ Right Side $= 48$
$= 3(18) - 6$
$= 48$
Left Side = Right Side
5. No, the difference in consecutive values of b is the same, but the difference in consecutive values of a is not the same.
6. 333%, $3\frac{1}{3}$ **7.** 5.24, $5\frac{6}{25}$
8. 0.375, 37.5% **9.** 3
10. a) $10^2 = 100$, $11^2 = 121$, $\sqrt{116} \approx 10.8$
b) $5^2 = 25$, $6^2 = 36$, $\sqrt{32} \approx 5.7$

Section 10.4
1. $x = 45$
2. a) Subtract 4 from both sides of the equal sign.
b) Subtract 6 from both sides of the equal sign.
3. a) Multiply both sides of the equal sign by -2.
b) Multiply both sides of the equal sign by -7.
4. a) $p = -16$
Left Side $= \frac{p}{-2} + 4$ Right Side $= 12$
$= \frac{-16}{-2} + 4$
$= 8 + 4$
$= 12$
Left Side = Right Side
b) $t = 196$
Left Side $= -22$ Right Side $= \frac{t}{-7} + 6$
$= \frac{196}{-7} + 6$
$= -28 + 6$
$= -22$
Left Side = Right Side
5. a) Answers will vary. Example: Apples seem to sell the best because they have the longest line on the pictograph.
b) Answers will vary. Example:



6. ☐ = 245 beats **7.** ☐ = 1¢
8. ☐ = 17 **9.** $\frac{55}{7} = 7\frac{6}{7}$
10. ☐ $= \frac{7}{3}$

BLM 10–4 Chapter 10 Problems of the Week
1. ▽ = 48 ⬭ = 12 ⬡ = 6 △ = 4
⬠ = 8 ◎ =3 ⯃ = 5 ◇ = 2
2. The solution is incorrect.
$x - 3 = 7$
$x - 3 + 3 = 7 + 3$
$x = 10$

3. Methods may vary. Let x be the age of the first child, $x + 1$ the age of the second child, and $x + 2$ the age of the third child.
Solve by Guess and Check:
$x = 10$
$10 + (10+ 1) + (10 + 2) = 33$ Too Low
$x = 11$
$11 + (11 +1) + (11+2) = 36$ Correct
Aunt Katrina's children are 11 years old, 12 years old, and 13 years old.
4. $173 \div 100 = 1.73$
1.73 m = 173 cm
$3.14d \approx 173$
$d \approx 173 \div 3.14$
$d \approx 55$
The diameter of my bicycle wheel is approximately 55 cm.
5. a) Let x be my successful shots and $x - 6$ be my partner's successful shots.
$3(x - 6) = 30$
$x - 6 = 10$
$x = 16$
I made 16 successful shots.
b) My score was $16(3) - 10(2) = 28$ points.
My partner scored 30 points.I did not win.
c) It is better to throw fewer shots that are more accurate. I should take my time when I shoot.
d) Answers may vary. Example: If one person makes 10 successful shots and misses one shot, and the other person makes 16 successful shots and misses 10 shots, they will be tied.
6. $4(8) + 3x = 143$
$32 + 3x = 143$
$3x = 111$
$x = 37$
The ride was 37 km.
7. Answers will vary.

BLM 10–5 Section 10.1 Extra Practice
1. a) $n = -4$ **b)** $r = -20$ **c)** $y = 54$ **d)** $c = -3$
2. a) $x = 3$ **b)** $x = 8$ **c)** $x = -12$ **d)** $x = 1$
3. a) $d = 8$ **b)** $p = 176$ **c)** $e = -112$ **d)** $y = 12$
4. a) yes **b)** yes **c)** no **d)** no
5. a) $4w = 79$, where w is the width of the skateboard
b) $4w = 79$
$w = 19.75$
Mika's skateboard has a length of 19.75 cm.
Check: $4(19.75) = 79$

BLM 10–7 Section 10.2 Extra Practice
1. a) $x = 2$ **b)** $x = 3$ **c)** $x = 1$ **d)** $x = 3$
2. a) $x = 3$ **b)** $x = 4$ **c)** $x = -1$ **d)** $x = 2$
3. a) $t = 4$ **b)** $f = -7$ **c)** $w = -9$ **d)** $q = 1$
4. a) yes **b)** yes **c)** no **d)** yes
5. $7c + 12 = 47$, where c represents converted touchdowns
$7c = 35$
$c = 5$
The Spartans scored five converted touchdowns.

BLM 10–8 Section 10.2 Math Link
1.

Starting Speed (m/s)	Amount of Time the Object Falls (s)	Speed at Which It Hits the Ground (m/s)
0	5	$10 \times 5 = 50$
5	4	$5 + (10 \times 4) = 45$
10	1	$10 + (10 \times 1) = 20$
0	12	$10 \times 12 = 120$
15	3	$15 + (10 \times 3) = 45$

2. $5 + 10t = 45$
3. $5 + 10t = 45$
$10t = 40$
$t = 4$
The stone fell for 4 s.

BLM 10–9 Section 10.3 Extra Practice
1. a) $r = 8$ **b)** $q = 27$ **c)** $v = 40$ **d)** $z = -25$
2. a) $n = 28$ **b)** $a = -16$ **c)** $x = 33$ **d)** $e = 30$
3. a) no **b)** yes **c)** no **d)** yes
4. $\frac{x}{2} + 2 = 11$, where x is Xien's age
$\frac{x}{2} = 9$
$x = 18$
Xien is 18 years old.
5. Instead of dividing by 4, Alex should have added 5 to both sides of the equation and then divided by 4.

BLM 10–10 Section 10.3 Math Link
1. a) The points lie along a straight line.
b) Answers will vary. Example: The highest temperature is 15 ºC, and the temperature steadily decreases to about 50 ºC. The altitude ranges from 0 m to 10 000 m.
2. Answers may vary. Example:

Using the Graph	
Temperature, t (ºC)	**Height, h (m)**
15	0
−5	3000
0	2000
−30	7000
−50	10 000

3.

Using the Equation $t = 15 - \frac{h}{154}$	
Temperature, *t* (°C)	**Height, *h* (m)**
a) 15	0
b) −4.5	3000
c) 0	2310
d) −30.5	7000
e) −50	10 010

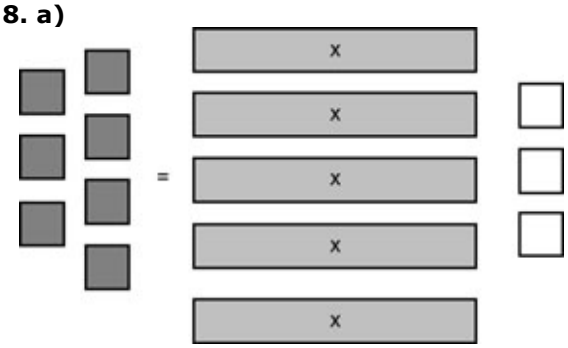
4. Answers will vary. Example: The graph starts at $t = 15$, and 15 is the constant in the equation.
5. 2310 m

BLM 10–11 Section 10.4 Extra Practice
1. a) $d = 1$ **b)** $k = 6$ **c)** $p = -1$ **d)** s = 2
2. a) $y = 2$ **b)** $c = 0$ **c)** $r = -8$ **d)** $j = 2$
3. a) yes **b)** no **c)** yes **d)** yes
4. $2(p + 21) = 62$, where p is the number of points scored in the first game
$p + 21 = 31$
$p = 10$
The Panthers scored 10 points in the first game.
5. $3(m + 165) = 1095$, where m is the amount of money raised by Room 17
$m + 165 = 365$
$m = 200$
Room 17 raised $200.

BLM 10–12 Section 10.4 Math Link
1. $250 = 10(r + 1)$ **2.** $4560 = 30(110 + p)$

BLM 10–13 Chapter 10 Test
1. D **2.** B **3.** C **4.** A **5.** B
6. a) $x = 5$ **b)** $a = 32$ **c)** $a = 12$ **d)** $y = -4$
e) $m = -15$ **f)** $n = 63$ **g)** $h = -12$ **h)** $k = 6$
7. a) $x = 3$ **b)** $m = 15$ **c)** $a = 2$
d) $c = -1$ **e)** $n = 13$ **f)** x = 24

8. a)



b) $x = 2$
9. $12 = 2a + 6$, where a is the age of Lisa's sister
$6 = 2a$
$3 = a$
Lisa's sister is 3 years old.
10. a) $x = 7$ **b)** $y = 18$ **c)** $m = -6$
11. a) The negative sign was dropped from $-13 = \frac{x}{3}$. It should be $-13 = -\frac{x}{3}$.
b) Methods may vary. Example:

$$-2 = 11 - \frac{x}{3}$$
$$-2 - 11 = 11 - 11 - \frac{x}{3}$$
$$-13 = -\frac{x}{3}$$
$$-13 + \frac{x}{3} = -\frac{x}{3} + \frac{x}{3}$$
$$-13 + \frac{x}{3} = 0$$
$$-13 + 13 + \frac{x}{3} = 0 + 13$$
$$\frac{x}{3} = 13$$
$$x = 39$$