

# BLM Answers

## BLM 5.GR.1: Get Ready

### Algebraic Expressions

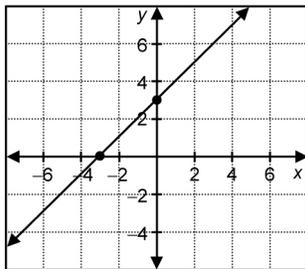
1. a)  $x + 18$       b)  $-5t + 4$       c)  $-3k - 4$   
 d)  $17m - 4$       e)  $-11y - 12$       f)  $12n$

### Manipulate and Solve Equations

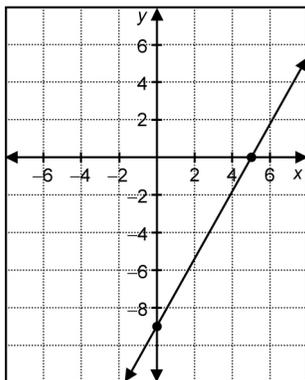
2. a)  $y = -2x - 8$       b)  $y = \frac{-x}{3} + \frac{5}{3}$   
 c)  $y = \frac{5}{2}x - 1$       d)  $y = -3x - 9$   
 e)  $y = \frac{-4x}{5} - \frac{2}{5}$       f)  $y = \frac{x}{6} - \frac{7}{6}$
3. a) 2      b) 11      c) 16  
 d) 5      e) 8      f)  $\frac{5}{2}$
4. a) 9      b) 4      c) 19  
 d) -9      e) -10      f) -2

### Graph Linear Relations

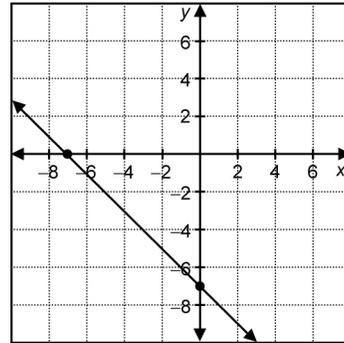
5. Graph each linear relation.  
 a)  $y = x + 3$



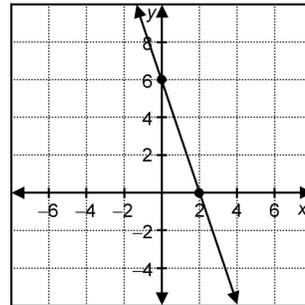
- b)  $y = 2x - 9$



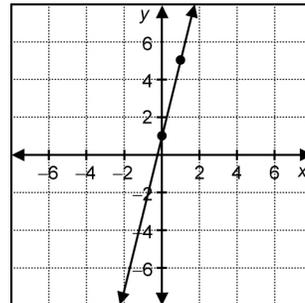
- c)  $y = -x - 7$



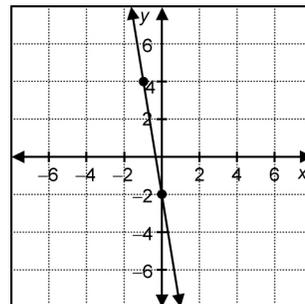
- d)  $y = -3x + 6$



- e)  $y = 4x + 1$



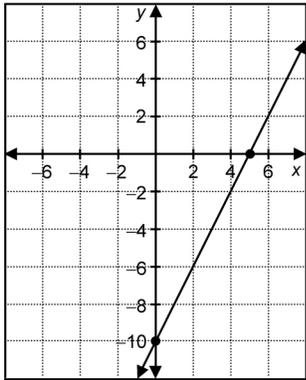
- f)  $y = -6x - 2$



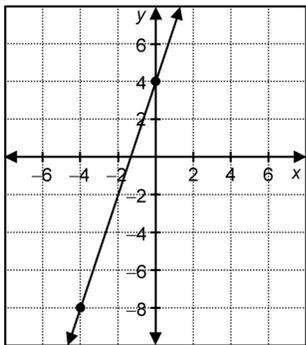
# BLM Answers

6. Rewrite each equation in slope y-intercept form, then graph it.

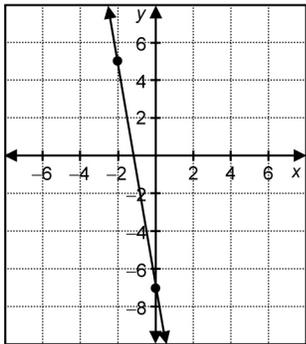
a)  $y = 2x - 10$



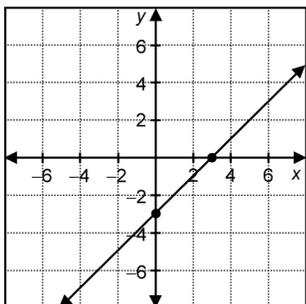
b)  $y = 3x + 4$



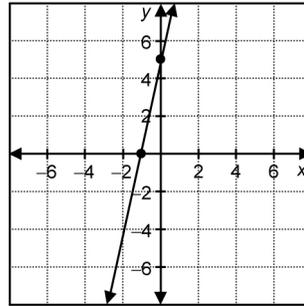
c)  $y = -6x - 7$



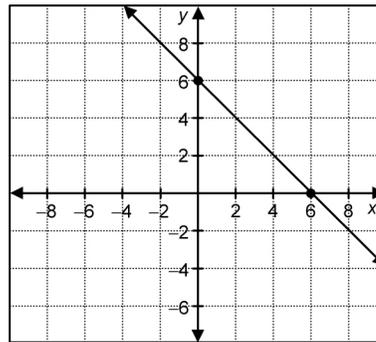
d)  $y = x - 3$



e)  $y = 5x + 5$



f)  $y = -x + 6$



## Translate Words to Algebra

7. Write an equation to represent each situation.

a)  $9.25x = 74$

b)  $100 + 0.25x = 205$

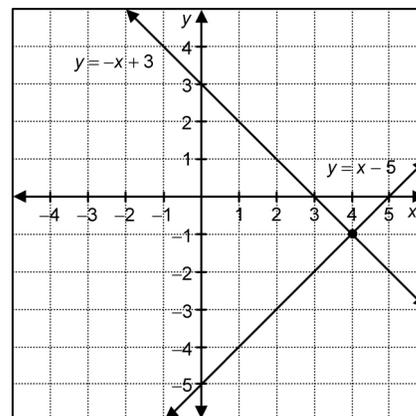
c)  $125 + 125x = 142.5$ , where  $x$  is the sales tax percent

d)  $0.2x = 58$

e)  $\pi r^2 = 24$

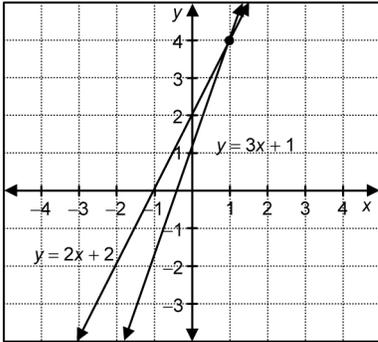
## BLM 5.1.1: Solve Linear Systems by Graphing

1. a)  $(4, -1)$

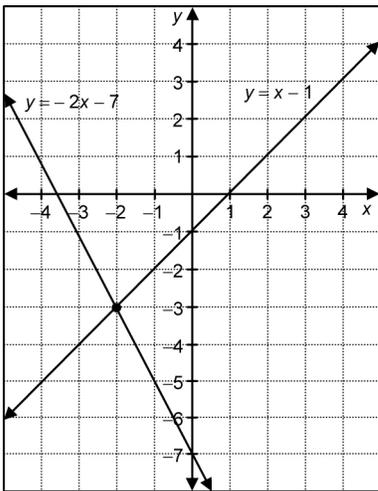


# BLM Answers

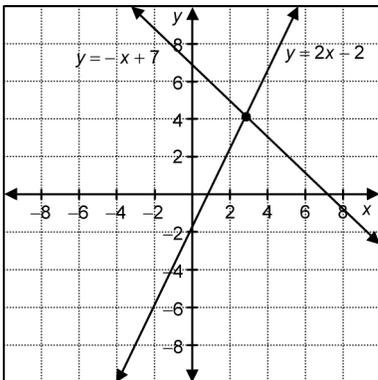
b) (1, 4)



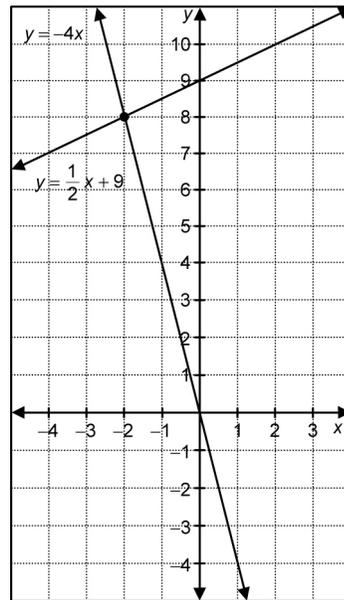
c) (-2, -3)



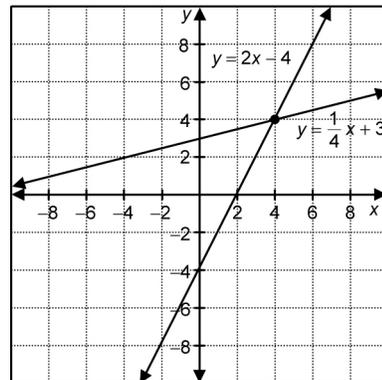
d) (3, 4)



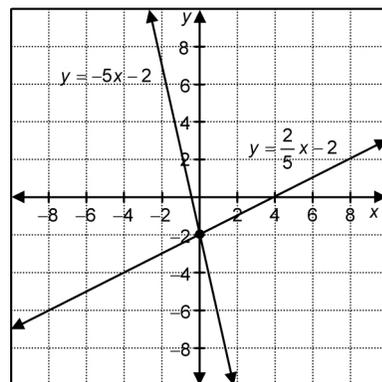
2. a) (-2, 8)



b) (4, 4)

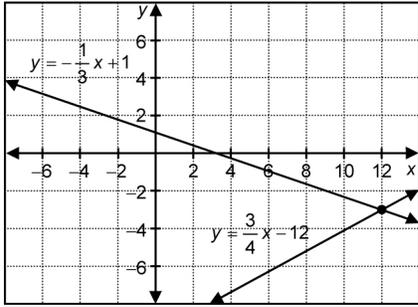


c) (0, -2)

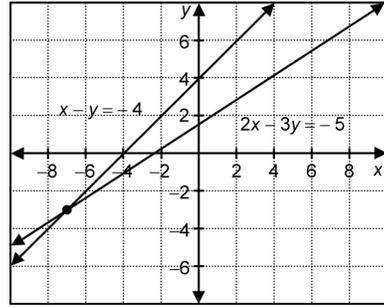


# BLM Answers

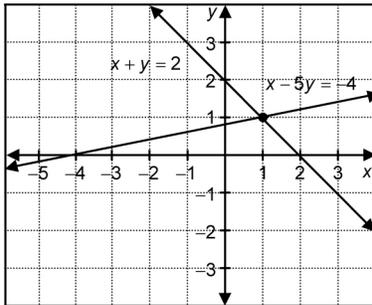
d) (12, -3)



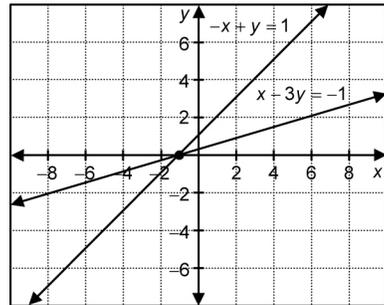
d) (-7, -3)



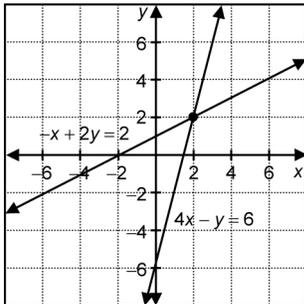
3. a) (1, 1)



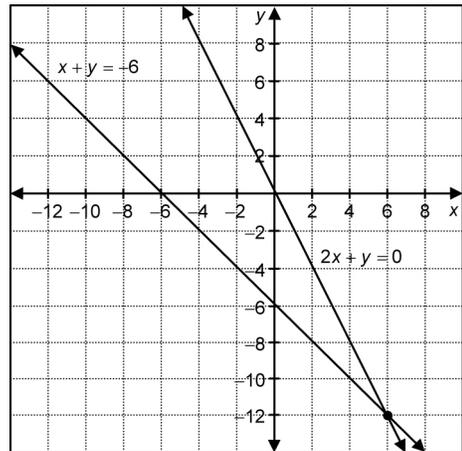
4. a) (-1, 0)



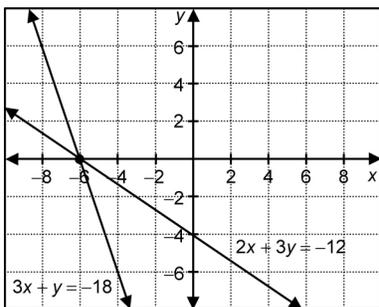
b) (2, 2)



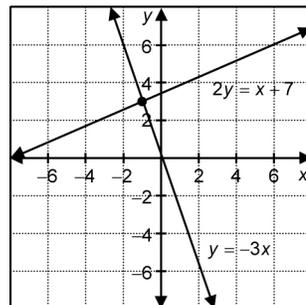
b) (6, -12)



c) (-6, 0)

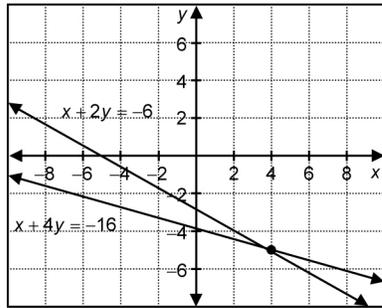


c) (-1, 3)



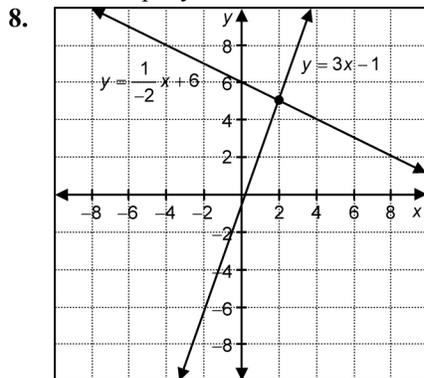
# BLM Answers

d) (4, -5)



5. a)  $y = 5x + 3$   
b)  $y = 4x + 5$   
c) point of intersection is (2, 13); The charge at both places are the same (\$13) when 2 games are played.
6. a)  $C = 35n + 1200$   
b)  $C = 40n + 1000$   
c)  $n = 40$
7. a)  $C = 25n$ , where  $n$  is the number of visits to the house  
b)  $C = 120$   
c) The costs would be the same when the number of visits is 4.8

If the lawn and garden need tending to 5 or more times in the summer, it would be less expensive to hire Julie's Landscaping Company.



point of intersection is (2, 5)

## BLM 5.2.1: Solve Linear Systems by Substitution

1. a)  $x = -1, y = -3$   
c)  $x = 0, y = -2$
2. a)  $x = \frac{1}{4}, y = \frac{3}{4}$   
c)  $x = \frac{-1}{2}, y = \frac{3}{2}$
3. a)  $x = 2, y = -7$   
c)  $x = -1, y = 3$
- b)  $x = 1, y = 4$   
d)  $x = -2, y = -3$
- b)  $x = \frac{1}{3}, y = \frac{-1}{3}$
- d)  $x = 2, y = 3$
- b)  $x = -2, y = -1$   
c)  $x = -4, y = 0$

4. a) Let  $x$  represent Ari's age and  $y$  represent Sasha's age. Then  $x - 5 = y$   
b)  $x + y = 38$   
c) Ari is 21.5 years old. Sasha is 16.5 years old.
5. a)  $C = 12n + 150$   
 $C = 10n + 180$   
b)  $n = 15$
6. a)  $C = 1 \times n + 120$   
b)  $C = 2.5n$   
c)  $n = 80$
7. a) Let  $x$  be the number of cows and  $y$  be the number of chickens.  
 $x + y = 30$   
 $y = 4x$   
b) 6 cows, 24 chickens
8. Solve the linear system:  $0.25q + 0.1d = 21$  and  $q - d = 14$ ;  
There are 50 dimes.
9. a) Let  $x$  be the number of multiple choice questions and  $y$  be the number of short response questions.  
 $x + y = 12$   
 $x + 2y = 17$   
b) Gene answered 7 multiple choice questions correctly.

## BLM 5.3.1: Solve Linear Systems by Elimination

1. a)  $x = 1, y = 2$   
c)  $x = -4, y = -2$
2. a)  $x = -1, y = 3$   
c)  $x = 7, y = 2$
3. a)  $x = -4, y = -1$   
c)  $x = 2, y = 3$
4. Solve each linear system.  
a)  $x = \frac{1}{2}, y = 0$   
c)  $x = 1, y = \frac{-1}{4}$   
b)  $x = 2, y = -3$   
d)  $x = 5, y = -1$   
b)  $x = 2, y = -1$   
d)  $x = -6, y = 0$   
b)  $x = -2, y = 2$   
d)  $x = 1, y = -4$   
b)  $x = -1, y = \frac{-1}{2}$   
d)  $x = \frac{-2}{3}, y = \frac{1}{3}$
5. a)  $x + y = 2$   
 $0.99x + 1.59y = 2.34$   
b) 1.4 L apple juice, 0.6 L cranberry juice
6. a)  $x + y = 900$   
 $8x + 6y = 6160$   
b) 520 children attended the event
7. a)  $2x + 80y = 140$   
 $3x + 140y = 215$   
b) cost per day is \$60  
c) cost per kilometre is \$0.25
8. a)  $C = 0.15n + 20$   
 $C = 0.75n$   
b) The break even point is when  $n = 33.3$ , so the minimum number of glasses of lemonade that needs to be sold in order to make money is 34.

# BLM Answers

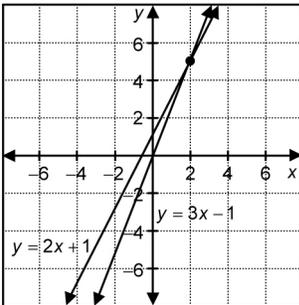
## BLM 5.4.1: Solve Problems Involving Linear Systems

- $x = 1, y = 3$
  - $x = 1, y = -1$
  - $x = 3, y = 7$
  - $x = 2, y = -1$
- 300
  - \$32500
- Caitlin invests \$1500 at 7% and \$1000 at 4.5%
- 4 months
  - If Daisy plans to use the internet for 1 year, she should choose the second internet company since it will cost less.
- The dimensions of the box are 27.5 cm by 17.5 cm.
- Solve the linear system  $x + y = 360$  and  $0.3x + 0.5y = 120$ , where  $x$  is the number of minutes for local calls and  $y$  is the number of minutes for long distance calls.  
Darren talked 60 minutes long distance.
- Let  $x$  be the cost of the gear per day and  $y$  be the cost of food per meal.  
 $7x + 14y = 462$   
 $7x + 21y = 518$
  - cost for renting the camping gear per day is \$50
  - cost of food per meal = \$8
- $x + y = 300$   
 $\frac{x}{60} + \frac{y}{100} = 4$
  - Steven drives 150 km at 60 km/h and 150 km at 100 km/h.

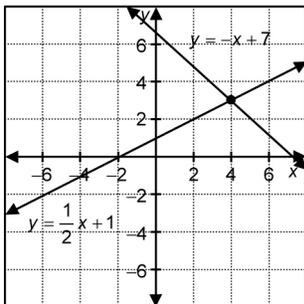
## BLM 5.CR.1: Chapter 5 Review

### 5.1.1 Solve Linear Systems by Graphing

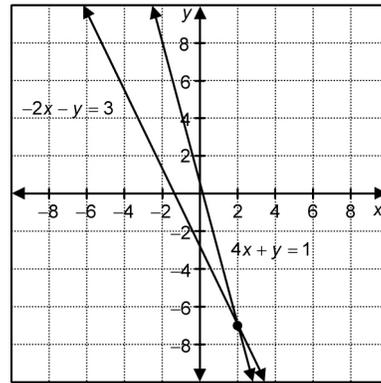
- (2, 5)



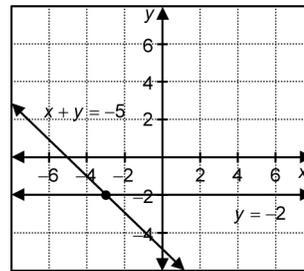
- (4, 3)



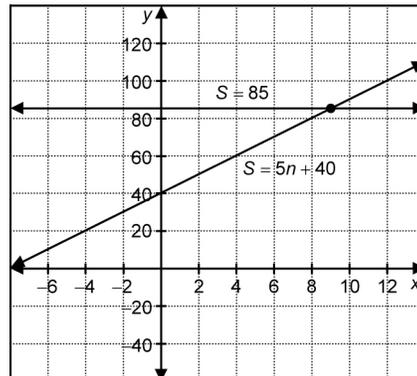
- (2, -7)



- (-3, -2)



- point of intersection is (2, 1)  
 $y = x - 1$   
 $y = -2x + 5$
  - point of intersection is (-0.25, 3)  
 $y = -4x + 2$   
 $y = 8x + 5$
  - point of intersection is (3.33, 3.67)  
 $y = 2x - 3$   
 $y = \frac{1}{2}x + 2$
  - point of intersection is (4, -2)  
 $y = \frac{1}{2}x - 4$   
 $y = \frac{-3}{4}x + 1$
- $S = 5n + 40$
  - $S = 85$
- point of intersection is (9, 85)



- 9 haircuts

# BLM Answers

## 5.2 Solve Linear Systems by Substitution

4. a)  $x = -2, y = -8$       b)  $x = -1, y = 2$   
 c)  $x = -1, y = -1$       d)  $x = 8, y = -14$
5. a)  $y = 5x + 10$       b)  $y = 4x + 12$   
 c) 2 hours  
 d) For 3 hours of play, it would cost less at Tag Patrol.
6. Solve the linear system  $C = 12n + 100$  and  $C = 15n + 85$ ; The costs will be the same at both places when 5 jerseys are purchased.

## 5.3 Solve Linear Systems by Elimination

7. a)  $x = -1, y = -5$       b)  $x = -2, y = 0$   
 c)  $x = \frac{-1}{2}, y = \frac{-1}{2}$       d)  $x = \frac{-5}{3}, y = \frac{1}{3}$
8. Solve the linear system  $x + y = 40$  and  $11.5x + 14y = 490$ ; Rachel needs to use 28g chili powder and 12g curry powder.
9. a)  $x + y = 3000$   
 $16x + 10y = 37200$   
 b) 1200 adult tickets and 1800 children tickets

## 5.4 Solve Problems Involving Linear Systems

10.  $x = -1, y = -7$
11. Gundeep invests \$1500 at 4% per year and \$3500 at 6% per year.
12. Pavel has a collection of 124 baseball cards and hockey cards. He is only 5 cards short of having twice as many hockey cards as baseball cards.  
 a)  $b + h = 124$   
 b)  $h = 2b - 5$   
 c) Pavel has 43 baseball cards and 81 hockey cards.
13. a)  $x + y = 50000$   
 $\frac{x}{65} + \frac{y}{50} = 880$   
 b) Mei-Ling downloads 26000 kB from the first website at 65 kB/s and 24000 kB from the second website at a speed of 50 kB/s.

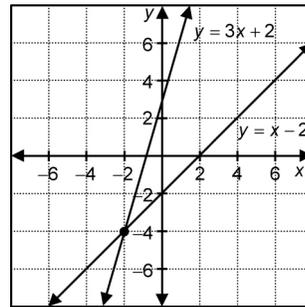
## BLM 5.PT.1: Chapter 5 Practice Test

### Multiple Choice

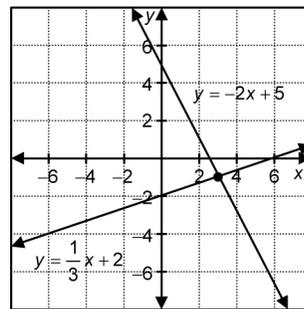
1. D  
 2. C  
 3. A

## Short Response

4. a)  $(-2, -4)$



- b)  $(3, -1)$



5. a)  $x = 3, y = 2$       b)  $x = 1, y = 1$
6. a)  $x = -1, y = 1$       b)  $x = -3, y = 1$
7. a) Solve by substitution or elimination.  
 b)  $x = 3, y = 1$
8. The dimensions of the rectangle are 3.6 cm by 2.4 cm
9. Solve the linear system  $x + y = 90$  and  $9x + 12y = 900$ ; Marsha needs to use 60 g of the first kind of coffee and 30 g of the second kind of coffee.
10. Billy invests \$1800 at 3.5% per year and \$2200 at 5% per year.

## Extended Response

11. a)  $y = 35x + 160$       b)  $y = 30x + 180$   
 c) 4 hours  
 d) If the party is shorter than 4 hours, it would cost less to hire Rappin' Ron.
12. a)  $x + y = 4$   
 $40x + 60y = 190$   
 b) Sandra paints 2.5 fences at a speed of 40 min per panel and 1.5 fences at a speed of 60 min per panel.

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13. a) Let  $x$  be the number of buttons and  $y$  be the number of friendship bracelets.  
 $x + y = 500$   
 $40 + 0.1x + 0.35y = 165$
- b) They can make 200 buttons and 300 friendship bracelets.
- c)  $x = 2y$   
 $x + 3y = 165$   
 They need to sell 66 buttons and 33 friendship bracelets in order to break even.
- d) Profit = Revenue - Cost =  $\$1100 - \$165 = \$935$

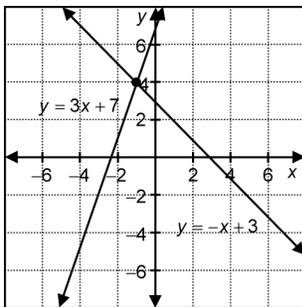
## BLM 5.CT.1: Chapter 5 Test

### Multiple Choice

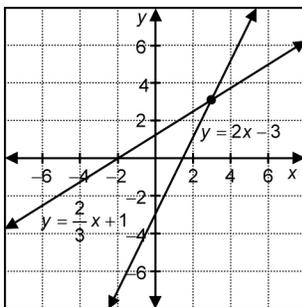
1. A
2. B
3. A

### Short Response

4. a)  $(-1, 4)$



- b)  $(3, 3)$



5. a)  $x = -4, y = 14$       b)  $x = 1, y = 4$
6. a)  $x = -2, y = 3$       b)  $x = 2, y = 2$
7. a) Solve by substitution or elimination.  
 b)  $x = 1, y = -1$
8. Let  $x$  represent Yogi's age in years and  $y$  represent Michelle's age in years.  
 $x - y = 6$   
 $x + y = 26$   
 Yogi's age is 16 years and Michelle's age is 10 years.

9. Solve the linear system  $x + y = 100$  and  $9x + 6.5y = 700$ ; Larry needs to use 20 g cinnamon and 80 g sugar.
10. Aisha invests  $\$1400$  at 4.5% per year and  $\$2200$  at 6% per year.

### Extended Response

11. a)  $y = 40x + 200$       b)  $y = 35x + 230$   
 c) 6 hours  
 d) If the party is shorter than 6 hours, it would cost less to hire Rockin' Jimmy.
12. Delilah is going to college in the fall. She needs to drive from one city to another. Within the city limits she drives at a speed of 50 km/h. Outside the city, she drives at a speed of 100 km/h. The trip to the campus is 200 km and takes 2.4 hours.  
 a)  $x + y = 200$   
 $\frac{x}{50} + \frac{y}{100} = 2.4$   
 b) Delilah drive's 40 km at 50 km/h and 160 km at 100 km/h.
13. a) Let  $x$  be the number of T-shirts and  $y$  be the number of caps.  
 $x + y = 100$   
 $80 + 5x + 2y = 460$   
 b) They can make 60 T-shirts and 40 caps.  
 c)  $x = 2y$   
 $18x + 10y = 460$   
 They need to sell 20 T-shirts and 10 caps in order to break even.  
 d) Profit = Revenue - Cost =  $\$1480 - \$460 = \$1020$