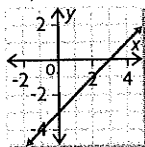


c)  $y = x - 3$ ,  $3y = 3x - 9$ ; substitution gives  $0 = 0$ .

$$y = x - 3$$

$$3y = 3x - 9$$



5. Answers may vary, e.g., if the coefficients and constants in both equations are multiplied by the same amount, then there is an infinite number of solutions. If the coefficients and constants in both equations are not multiplied by the same amount, then there is one solution. If the coefficients in both equations are multiplied by the same amount but the constants are not, then there is no solution.
6. No. The linear system has no solution therefore the planes will not collide.

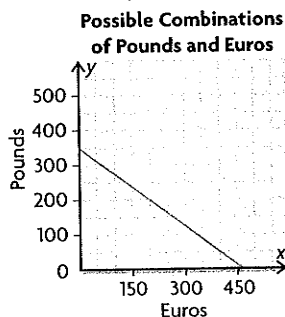
## Chapter Review, page 62

1. Strategy 1:

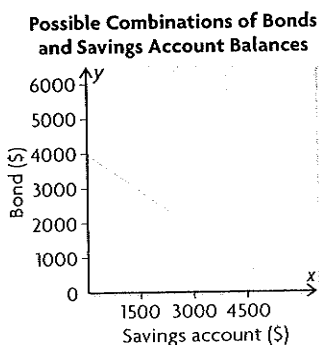
Euros		Pounds		Total Cost (\$)
Amount	Cost (\$)	Amount	Cost (\$)	
0.00	0.00	350.00	700.00	700.00
200.00	300.00	200.00	400.00	700.00
400.00	600.00	50.00	100.00	700.00
466.67	700.00	0.00	0.00	700.00

Strategy 2: Let  $x$  represent the number of euros, and let  $y$  represent the number of pounds;  $1.5x + 2y = 700$

Strategy 3:



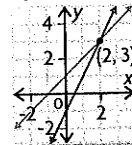
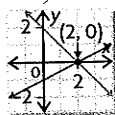
2. Let  $x$  represent the amount in the savings account, and let  $y$  represent the amount in the bond;  $0.025x + 0.035y = 140$



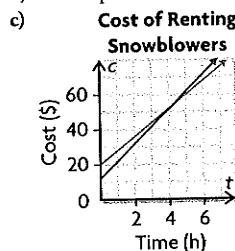
3. a) After 5 h, there was 25.5 L of fuel left.  
 b) Answers may vary, e.g., about 37 L  
 c) Answers may vary, e.g., about 3:45 p.m.

4. Make a table of values, write equations, draw a graph; if you are planning to drive more than about 333 km, then Bestcars is cheaper.

5. a)  $x = 2y + 2$       b)  $2x - y = 1$   
 $x + y = 2$                $y - x = 1$



6. a) Let  $C$  represent the cost, and let  $t$  represent the time;  $C = 20 + 8t$   
 b) Let  $C$  represent the cost, and let  $t$  represent the time;  $C = 12 + 10t$



c) It represents the point where both companies charge the same amount.

7. a)  $(-\frac{5}{2}, 4)$       b) (15, 10)      c) (2, 4)      d) (2, 1)

8. registration fee: \$150; monthly fee: \$55

9. a) Let  $l$  represent the length, and let  $w$  represent the width;  
 $2l + 2w = 40$ ,  $l = w + 2$

b)  $l = 11$ ,  $w = 9$

c) The rectangle is 11 m long and 9 m wide.

10. a) A

b) Answers may vary, e.g.,  $x - 4y = 5$ ,  $3x - 6y = 3$

c) Answers may vary, e.g.,  $4x - 10y = 8$ ,  $-3x + 3y = 3$

11. Answers may vary, e.g.,

a)  $x - 4y = 14$ ,  $-5x - 2y = -4$ ;  
 $-6x - 9y = 15$ ,  $-3x + y = -9$

b)  $(2) - 4(-3) = 14$ ,  $-5(2) - 2(-3) = -4$ ;  
 $-6(2) - 9(-3) = 15$ ,  $-3(2) + (-3) = -9$ ;  
 $-2(2) - 3(-3) = 5$ ,  $3(2) - (-3) = 9$

12. a) (2, -3)      b) (-3, -1)      c) (-2, 3)      d) (3, 12)

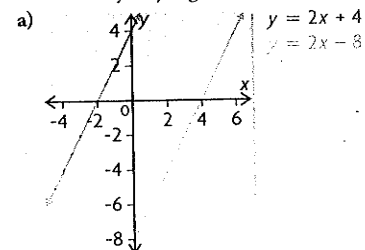
13. about 110 g of 99% cocoa, about 90 g of 70% cocoa

14. \$150 in total; desk: \$51, chalkboard: \$99

15.  $(\frac{34}{11}, \frac{37}{11})$

16. 36 \$5 bills, 40 \$10 bills

17. Answers may vary, e.g.,



b) blue line:  $y = 2x - 8$ ,  $3y = 6x - 24$ ;  
 red line:  $y = 2x + 4$ ,  $4y = 8x + 16$

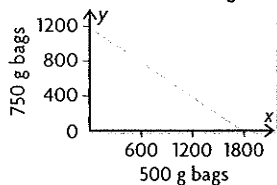
c) The slopes are equal.

18.  $a = 2.4$ ,  $b = 4$

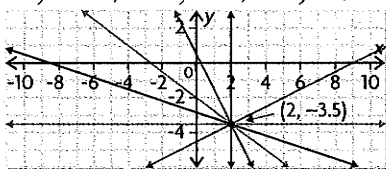
## Chapter Self-Test, page 64

1. Let  $x$  represent the number of 500 g cartons, and let  $y$  represent the number of 750 g cartons;  $0.5x + 0.75y = 887.5$

Possible Combinations  
of Raisin Bags



2. a) Let  $V$  represent the volume remaining, and let  $t$  represent the time after 8:30 a.m.;  $V = 1500 - 4t$   
 b) Answers may vary, e.g., about 10:30 a.m.  
 c) 10:35 a.m.
3. a)  $(-1.5, 2.5)$     b)  $(\frac{-24}{7}, \frac{1}{7})$     c)  $(2, -3)$
4. about 13.33 g of 85% gold, about 6.67 g of 70% gold
5. Answers may vary, e.g., at the point  $(x, y)$ , which represents a solution to a linear system, both sides of an equation in the system must be equal. Therefore, adding or subtracting these equations is the same as adding or subtracting constants to both sides of an equation: the solution will remain the same.
6. a)  $4x + 2y = 1, 2x + 6y = -17; x = 2, y = -3.5$   
 b)  $4x + 2y = 1, 2x + 6y = -17, x = 2,$   
 $y = -3.5, 3x + 4y = -8, x - 2y = 9$



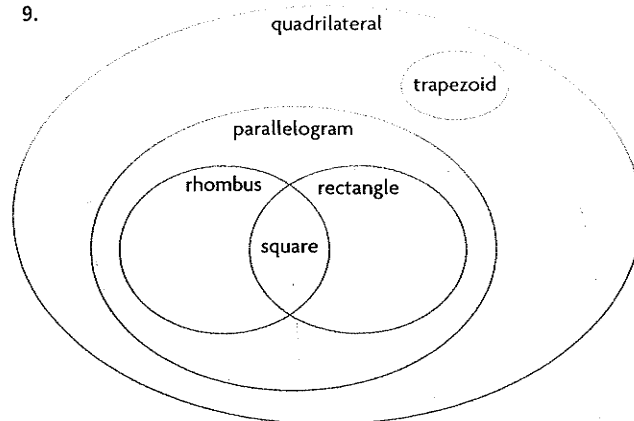
7. 6 km  
 8. \$1500 in a savings account, \$2700 in bonds  
 9. Answers may vary, e.g., adding the first equation to 3 times the second equation and then simplifying gives  $15 = 24$ , which is not true.

## Chapter 2

### Getting Started, page 68

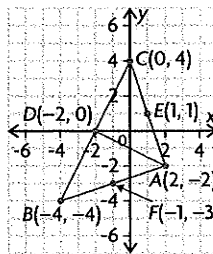
1. a) viii    c) ii    e) iv    g) i  
 b) vii    d) v    f) vi    h) iii
2. a) 13 m  
 b) about 192.3 mm
3. a)  $y = \frac{1}{3}x + \frac{14}{3}$   
 b)  $y = -4x - 6$   
 c)  $y = -5x + 17$
4. a)  $-\frac{3}{2}$     c)  $\frac{35}{3}x$     e)  $\frac{23}{20}$   
 b)  $-\frac{3}{56}$     d)  $\frac{3}{8}y$     f)  $-1.4375$

5. a)  $-2$     c) 8    e) 3 or  $-3$   
 b)  $-1$     d) 6 or  $-6$     f) 8 or  $-8$
6. a)  $(1, 7)$     b)  $(1, \frac{3}{2})$
7. a) 6    b)  $\frac{1}{4}$     c) 0.7
8. a) about  $36.2 \text{ cm}^2$   
 b) about  $57.0 \text{ cm}^2$ , about  $41.7 \text{ cm}$
- 9.



### Lesson 2.1, page 78

1. a)  $(3, 5)$     b)  $(-0.5, 3.5)$   
 2. a)  $(2, 3)$     b)  $(0.5, 1)$     c)  $(4, -2)$
3. a)
- b)  $(32, 19)$
4. a)  $(2, 5)$     c)  $(2, -2)$     e)  $(-1, -1)$   
 b)  $(0.5, 3.5)$     d)  $(-0.5, 0.5)$     f)  $(0.25, 0.75)$
5.  $(0.75, -1)$
6.  $(5, 3)$ ; from  $P$  to  $M$ , run = 4 and rise = 2; the run and rise will be the same from  $M$  to  $Q$ , so  $Q$  has coordinates  $(1 + 4, 1 + 2)$
7. a), b)  $y = -\frac{1}{2}x - 1$



8. Answers may vary, e.g.,  $(-4, 4)$  and  $(2, 2)$  based on the assumption that the centre is at  $O$ , or  $(5, 1)$  and  $(-1, 3)$  based on the assumption that the centre is at  $R$