REVIEW OF *Key* CONCEPTS

1.1–1.2 Solving Linear Systems Graphically

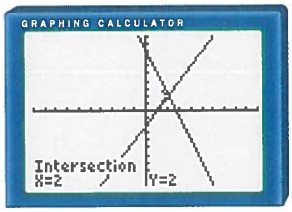
Refer to the Key Concepts on page 12.

To solve the following system by graphing, write the equations in the slope and y-intercept form.

$$3x + y = 8 \quad (1)$$
$$2x - y = 2 \quad (2)$$

$3x + y = 8$
$y = 8 - 3x$

$2x - y = 2$
$-y = -2x + 2$
$y = 2x - 2$



Graph the equations. Find the point of intersection.
The solution is (2, 2).
Check by substituting 2 for x and 2 for y in both of the original equations.

1. Solve each system by graphing. Check your solutions.

a) $y = x - 5$, $y = 3 - x$
b) $m + 2n = 2$, $3m + 2n = -6$
c) $p - q = 1$, $p + 2q = 7$
d) $2x + y = 2$, $2x + y + 4 = 0$
e) $x - y - 4 = 0$, $5x - y - 8 = 0$
f) $a + b = 4$, $3a = 12 - 3b$
g) $3x - 2y = -8$, $x - 2y = -4$
h) $2x - y = -4$, $2x + y = 6$

2. Solve each system graphically.

a) $4x + 3y = 1$, $4x - 3y = 14$
b) $3x + y = 1$, $x + 4y = 3$

3. Without graphing, determine whether each system has one solution, no solution, or infinitely many solutions.

a) $3c + d = 4$, $6c + 2d = 8$
b) $4x - 2y = 0$, $2x - y = 3$
c) $x + 5y = 9$, $x - y = 3$
d) $x + 2y - 7 = 0$, $3x + 6y - 14 = 0$

4. Deserts The two largest deserts in the world are the Sahara Desert and the Australian Desert. The sum of their areas is 13 million square kilometres. The area of the Sahara Desert is 5 million square kilometres more than the area of the Australian Desert. Solve the following system graphically to find the area of each desert, in millions of square kilometres.

$$s + a = 13$$
$$s = a + 5$$

5. Profit A company manufactures and sells paddles. Its manufacturing costs are \$500, plus \$10 per paddle. The company sells the paddles for \$18. The cost and revenue can be represented by the following system of equations.

Dollar Cost: $d = 500 + 10p$
Dollar Revenue: $d = 18p$

a) Communication What does each variable represent?
b) Solve the system graphically.
c) How many paddles must be sold for the company to make a profit?

1.3 Solving Linear Systems by Substitution

Refer to the Key Concepts on page 20.

To solve the following system by substitution, solve one equation for a variable that has a coefficient of 1 or –1, and then substitute in the second equation.

$$2x + y = 2 \quad (1)$$
$$3x + 2y = 5 \quad (2)$$

Solve (1) for y: $y = 2 - 2x$

Substitute $2 - 2x$ for y in (2): $3x + 2(2 - 2x) = 5$

$$3x + 4 - 4x = 5$$
$$-x = 1$$
$$x = -1$$

Substitute –1 for x in one of the original equations and solve for y.

Substitute –1 for x in (1): $2x + y = 2$

$$2(-1) + y = 2$$
$$-2 + y = 2$$
$$y = 4$$

The solution is (–1, 4).

Check by substituting –1 for x and 4 for y in both of the original equations.

6. Solve each system by substitution. Check each solution.

a) $y = 6 - 2x$, $3x + 2y = 10$

b) $3x + y - 2 = 0$, $5x + 2y - 3 = 0$

c) $3s + 5t = 2$, $s + 4t = -4$

d) $x + 4y = -3$, $2x + 8y = -6$

e) $3x + 2y = 9$, $-x + 3y = 8$

f) $2f + g = 4$, $4f + 2g = 9$

g) $7 = b - 2a$, $4 = a + b$

h) $3m - 6n = 1$, $m + 3n = 2$

7. Simplify each system, and then solve it by substitution. Check each solution.

a) $2(x - 1) + y = 2$, $3x - 4(y + 3) = 5$

b) $3(x + 1) - (y + 7) = -2$, $4x + 5(y - 3) = -6$

8. Canadian place names The two most common place names in Canada are Mount Pleasant and Centreville. The total number of places with these names is 31. The number of places called Centreville is one less than the number of places called Mount Pleasant. This information can be modelled by the following linear system.

$$m + c = 31$$
$$c = m - 1$$

Solve the system by substitution to find the number of places in Canada with each name.

1.4–1.5 Solving Linear Systems by Elimination

Refer to the Key Concepts on page 30.

To solve by elimination, multiply one or both equations by numbers to obtain two equations in which the coefficients of one variable are the same or opposites.

$$2x - 3y = 10 \quad (1)$$
$$5x + 2y = 6 \quad (2)$$

Multiply (1) by 2: $4x - 6y = 20$
Multiply (2) by 3: $15x + 6y = 18$
Add: $19x = 38$
$x = 2$

Substitute 2 for x in (1): $2(2) - 3y = 10$
$4 - 3y = 10$
$-3y = 6$
$y = -2$

The solution is $(2, -2)$.
Check by substituting 2 for x and -2 for y in both of the original equations.

9. Solve each system of equations by elimination. Check each solution.

a) $2x + 3y = 4$
$4x - 3y = -10$

b) $4a + 5b = -3$
$4a + 9b = 1$

c) $3x + 4y = 17$
$7x - 2y = 17$

d) $5m + 4n = 5$
$3m - 2n = 3$

e) $2x - 3y = 8$
$4x - 6y = 10$

f) $2x + 5y = 3$
$4x + 10y - 6 = 0$

g) $3c + 2d = -12$
$2c + 3d = -13$

h) $-2x - 5y = 3$
$3x + 2y = 14$

10. **Communication** Which method would you use to solve each system of equations? Explain. Then, solve and check each system.

a) $y = x - 1$
$y = 2x + 3$

b) $5x - y = 4$
$3x + y = 4$

c) $3m - 4n = 4$
$m + 6n = 5$

d) $4x + 7y = 10$
$3x - 5y = -13$

11. Simplify and solve the system. Check the solution.

$$3(x + 1) - 4(y - 1) = 13$$
$$5(x + 2) + 2(y + 3) = 0$$

12. Solve. Check each solution.

a) $\frac{x}{3} + \frac{y}{2} = 3$
$\frac{2x}{3} - \frac{3y}{4} = -1$

b) $0.5x - 0.4y = 0.5$
$3x + 0.8y = 1.4$

13. **Resort costs** A weekend at Bayview Lodge costs $360 and includes two nights' accommodation and four meals. A week costs $1200 and includes seven nights' accommodation and ten meals. If n represents the cost of one night, and m represents the cost of one meal, the relationship between the costs can be modelled by the following system of equations.

$$2n + 4m = 360$$
$$7n + 10m = 1200$$

Determine the cost of one night and the cost of one meal.

1.6–1.7 Solving Problems Using Linear Systems

Refer to the Key Concepts on page 43.

14. **Car wash** The Outdoors Club held a car wash to raise money. They washed cars for $5 each and vans for $7 each. They washed 45 vehicles and earned $243. How many of each type of vehicle did they wash?

15. **Buying bonds** Li bought a Canada Savings Bond paying 5.5% interest and a provincial government bond paying 6.5% interest. She invested a total of $15 000 and earned $925 in interest in the first year. How much did she pay for each bond?

16. **Lawn fertilizer** One lawn fertilizer is 24% nitrogen, and another is 12% nitrogen. How much of each fertilizer should be mixed to obtain 100 kg of fertilizer that is 21% nitrogen?

17. **Tail wind** A small plane took 3 h to fly 960 km from Ottawa to Halifax with a tail wind. On the return trip, flying into the wind, the plane took 4 h. Find the wind speed and the speed of the plane in still air.

18. **Car trip** Maria drove from Owen Sound to Ottawa, a distance of 550 km. The trip took 7 h. Maria drove at 70 km/h for part of the trip, and at 85 km/h for the remainder of the trip. How far did she drive at 70 km/h?

Chapter Test

1. Solve each system by graphing. Check your solutions.

a) $y = x - 1$
$y = 2x - 5$

b) $x - y = 1$
$3x + 2y = -12$

c) $y = 4x + 4$
$x + 5y = -1$

d) $m + 5n + 9 = 0$
$3m - n - 5 = 0$

2. Solve each system graphically.

a) $y = 2x + 5$
$y = -4x + 1$

b) $2x + 3y = 8$
$3x - 5y = 2$

3. Communication Describe the graph of a system of equations with each number of solutions.

a) one **b)** none **c)** infinitely many

4. Solve each system by substitution. Check each solution.

a) $2x + y = 6$
$3x - 2y = 2$

b) $x + 2y + 2 = 0$
$2x - 6y + 9 = 0$

5. Solve each system by elimination. Check each solution.

a) $-2x + 5y = -3$
$2x - 3y = 1$

b) $3x + 2y = 8$
$2x + 3y = 7$

6. Solve each system by any method. Check each solution. If there is not exactly one solution, does the system have no solution or infinitely many solutions?

a) $5x - 3y = 9$
$2x - 5y = -4$

b) $3a + b - 4 = 0$
$2a - 10 = 3b$

c) $10x + 2 = 6y$
$5x = 3y - 1$

d) $x = 2 - 2y$
$y + \frac{1}{2}x = -1$

e) $\frac{x}{3} + \frac{y}{4} = -1$
$2x + y = -8$

f) $3p - 6q = 0$
$4p + q = 3$

g) $2x + 3y = -2$
$8x + 5y = -6$

h) $0.2x + 0.7y = 1.5$
$0.3x - 0.2y = 1$

i) $\frac{x}{5} + \frac{y}{3} = 3$
$\frac{x}{2} - \frac{y}{12} = 2$

j) $2(m + 1) - (n - 4) = 15$
$3(m - 1) + 4(n + 2) = 2$

Cumulative Review: Chapters 1 and 2

Chapter 1 Linear Systems

1. Solve by graphing.

a) $y = 3x + 1$
$y = 4x + 15$

b) $4x + y = -1$
$6x - y = 6$

2. Solve each system by substitution. Check each solution.

a) $x + 4y = 3$
$2x + 5y = 3$

b) $2a + b = 2$
$3a - 2b = 3$

3. Solve each system by elimination. Check each solution. If there is not exactly one solution, does the system have no solution or infinitely many solutions?

a) $8a - 3b = 10$
$7a + 3b = 20$

b) $5x - 8y = 12$
$10x - 16y = 24$

c) $2x - 3y = 6$
$5x - 4y = 1$

d) $5p + 8q = 4$
$3p + 10q = 5$

4. Selling produce Portobello mushrooms sell for \$6.60/kg and oyster mushrooms sell for \$11.00/kg. Find the mass of each type of mushroom in 1-kg bags selling for \$8.36.

5. River patrol It took a patrol boat 3 h to travel 48 km up a river against the current and 2 h for the return trip with the current. Find the speed of the boat in still water and the speed of the current.

6. Investing Carlos invested \$12 000, part in a term deposit that paid 4% per annum and the remainder in bonds that paid 5% per annum. The total interest after one year was \$560. How much did he invest at each rate?

7. Acid solutions A chemistry teacher needs to make 20 L of 36% sulfuric acid solution. The acid solutions available are 30% sulfuric acid solution and 40% sulfuric acid solution. How many litres of each solution should be mixed to make the 36% solution?

Chapter 2 Analytic Geometry

1. Find the length of the line segment joining each pair of points. Express each length as an exact solution and as an approximate solution, to the nearest tenth.

a) M(3, 7) and A(1, 3)

b) B(5, −1) and C(−3, 4)

2. Find the coordinates of the midpoint of each line segment, given the endpoints.

a) M(1, 13) and N(9, −3)

b) W(7, −2) and Z(−2, −3)

3. Write an equation for the circle with centre (0, 0) and radius 12.

4. Determine the radius of a circle with centre (0, 0) and equation $x^2 + y^2 = 36$.

5. Measurement $\triangle RST$ has vertices R(−1, −1), S(−2, 4), and T(−6, 0).

a) Classify the triangle by side length.

b) Find the perimeter, to the nearest tenth.

6. The vertices of a kite are G(2, 5), H(5, 1), I(8, 2), and J(7, 5). Verify that

a) the diagonals are perpendicular

b) one, and only one, of the diagonals bisects the other diagonal

7. Quadrilateral DEFG has vertices D(−4, 1), E(−2, −3), F(6, −1), and G(2, 3). Verify that the quadrilateral formed by joining the midpoints of the sides of DEFG is a parallelogram.

8. $\triangle ABC$ has vertices A(2, 1), B(8, 3), and C(4, 7). Determine

a) an equation for BD, the median from B to AC

b) an equation for CE, the altitude from C to AB

c) an equation for FG, the right bisector of BC

9. Measurement Find the shortest distance from the point (5, 4) to the line $x + y = 5$. Express the distance as

a) an exact value

b) an approximate value, to the nearest tenth

c) $c = 2d$, $c - d = 17$ **d)** $b + f = 331$, $10b + 15f = 3915$
e) $x + y = 180$, $x + 4 = 3y$

Section 1.7 pp. 43–45

Practice **1. a)** \$140 **b)** \$15 **c)** \$210 **d)** $0.04x$
2. a) 30 kg **b)** 200 L **c)** $0.3x$ litres **d)** $0.09m$ kilograms
3. a) 240 km **b)** $40x$ kilometres **c)** 12 h **d)** $\frac{y}{90}$ hours

Applications and Problem Solving **4.** 147, 108
5. \$2000 at 6%, \$6000 at 4% **6.** 200 km at 100 km/h, 270 km at 90 km/h **7.** 16 km/h, 4 km/h **8.** \$6000 at 4%, \$9000 at 5% **9.** $x = 34$, $y = 10$ **10.** 10 mL of the 5% solution, 40 mL of the 10% solution **11.** 25 mL
12. $x = 32$, $y = 20$ **13.** 495 km/h, 55 km/h **14.** 2.7 m by 1.2 m **15.** 30 min **16.** 2.5 **17.** 400 km
18. $x = \frac{q+r}{2}$, $y = \frac{q-r}{2}$ **19. a)** 1.8 h **b)** 135 km
20. 8, 14, 31 **21.** No, since $a + b < c$. **22.** Answers may vary. **23. a)** 24 m by 2 m **b)** not possible **c)** 24 m by 2 m **d)** not possible

Career Connection p. 46

1. 100 g of 18-karat gold, 50 g of 9-karat gold

Modelling Math p. 46

a) Cost: $C = 2n + 2000$; Revenue: $C = 10n$ **b)** 250
c) 2250

Rich Problem pp. 48–49

1 Graphing and Interpreting Data **2. a)** 95% **b)** 5%
3. 4 million years ago
2 Communication **3. a)** (14, 50) **b)** Fourteen million years ago, the populations were equal.
4. No, the graphs only show percents, not absolute numbers. **5. a)** 5; −5
Technology Extension **1.** $y = 5x - 20$; $y = -5x + 120$
2. (14, 50)

Review of Key Concepts pp. 50–53

1. a) (4, −1) **b)** (−4, 3) **c)** (3, 2) **d)** no solution
e) (1, −3) **f)** infinitely many solutions **g)** (−2, 1)
h) $(\frac{1}{2}, 5)$ **2. a)** (1.9, −2.2) **b)** (0.1, 0.7)
3. a) infinitely many solutions **b)** no solution **c)** one solution **d)** no solution **4.** Sahara Desert: 9 million square kilometres; Australian Desert: 4 million square kilometres **5. a)** d represents the total cost or revenue; p represents the number of paddles.
b) (62.5, 1125) **c)** greater than 62 **6. a)** (2, 2)
b) (1, −1) **c)** (4, −2) **d)** infinitely many solutions
e) (1, 3) **f)** no solution **g)** (−1, 5) **h)** $(1, \frac{1}{3})$ **7. a)** (3, −2)
b) (1, 1) **8.** Mount Pleasant: 16, Centreville: 15
9. a) (−1, 2) **b)** (−2, 1) **c)** (3, 2) **d)** (1, 0) **e)** no solution **f)** infinitely many solutions **g)** (−2, −3) **h)** (4, 1)
10. Methods may vary. **a)** substitution: (−4, −5)
b) elimination: (1, 1) **c)** substitution: $(2, \frac{1}{2})$
d) elimination: (−1, 2) **11.** (−2, −3) **12. a)** (3, 4)
b) (0.6, −0.5) **13.** one night: \$150, one meal: \$15
14. 36 cars and 9 vans **15.** \$5000 Canada Savings Bond, \$10 000 Provincial Government Bond
16. 75 kg of 24% nitrogen, 25 kg of 12% nitrogen
17. 40 km/h; 280 km/h **18.** 210 km

Chapter Test pp. 54–55

1. a) (4, 3) **b)** (−2, −3) **c)** (−1, 0) **d)** (1, −2)
2. a) (−0.7, 3.7) **b)** (2.4, 1.1) **3. a)** The lines intersect at exactly one point. **b)** The lines are parallel and distinct. **c)** The lines are coincident.
4. a) (2, 2) **b)** $(-3, \frac{1}{2})$ **5. a)** (−1, −1) **b)** (2, 1)
6. a) (3, 2) **b)** (2, −2) **c)** infinitely many solutions
d) no solution **e)** (−6, 4) **f)** $(\frac{2}{3}, \frac{1}{3})$ **g)** $(-\frac{4}{7}, -\frac{2}{7})$ **h)** (4, 1)
i) (5, 6) **j)** (3, −3) **7.** Mackenzie River: 4241 km, Yukon River: 3185 km **8.** 240 g of 30% fruit, 360 g of 15% fruit **9.** term deposit: \$4000, municipal bond: \$9000 **10.** 50 km/h, 550 km/h

Problem Solving p. 57

Applications and Problem Solving **1. a)** 8 h 29 min
b) 179 km/h **2.** Jupiter, Saturn **3. a)** Newfoundland
b) Prince Edward Island **4.** (information taken from the web site of the Canadian Museum of Nature: http:// www.nature.ca/english/eladback.htm)
a) extinct: a species that no longer exists; extirpated: a species no longer existing in the wild, but existing elsewhere; endangered: a species facing imminent extirpation or extinction; threatened: a species likely to become endangered if limiting factors are not reversed; vulnerable: a species of special concern because of characteristics that make it particularly sensitive to human activities or natural events **b)** all living things, including plants and animals
10. Alberta **11.** Answers may vary.

Problem Solving p. 60

1. 298 **2.** 50 **3.** 92 units **4.** infinitely many; they pass through the centre of the rectangle **5.** 1, 3, 4, 5, 7, 8, 9, 11, 12, 13, 15, 16, 17, 19, 20, 21, 23, 24, 25, 27, 28, 29, 31, 32, 33, 35, 36, 37, 39, 40

Problem Solving p. 61

1. 253×14 **2. a)** 20 cm² **b)** 5 cm² **3.** 05:00 Wednesday
4. 321 cm² **5.** 16 **6.** 12 **7. a)** 94 **b)** 50 **8.** 31, 49

Technology Extension p. 106

1 Equations of Lines **5. a)** $x + y = 7$ **b)** $3x + 4y = -6$ **c)** $5y = 4x + 4$ **d)** $y = x - 5$

Rich Problem p. 111

2. Five locations at (6, 9), (6, 8), (7, 7), (7, 8), and (8, 7).

Review of Key Concepts pp. 112–115

1. a) 10 **b)** $\sqrt{40}$ **c)** $\sqrt{18}$ **d)** $\sqrt{232}$ **e)** $\sqrt{20}$
2. a) $x^2 + y^2 = 144$ **b)** $x^2 + y^2 = 400$ **3. a)** 11 **b)** 4.5 **c)** 20 **d)** 0.7 **4. a)** scalene **b)** 16.0 **5.** 23.6
6. DE = $\sqrt{82}$, EF = $\sqrt{41}$, FD = $\sqrt{41}$; EF = FD; so $\triangle DEF$ is isosceles. **7. a)** PQ = $\sqrt{13}$, QR = $\sqrt{13}$, RS = $\sqrt{13}$, SP = $\sqrt{13}$ **b)** $4\sqrt{13}$ **8. a)** $\left(-\frac{1}{2}, -1\right)$ **b)** (4, 0) **c)** $\left(\frac{7}{2}, -3\right)$ **d)** $(-3, \frac{3}{2})$ **e)** (3, –0.5) **f)** $(\frac{1}{2}, 1)$
9. (–3, 7) **10. a)** from A: $\sqrt{26}$, from B: $\sqrt{41}$, from C: $\sqrt{17}$ **b)** 5.1, 6.4, 4.1 **11.** Two sides have length $\sqrt{17}$; two sides have length $\sqrt{20}$. **12.** Their midpoints coincide at $\left(-\frac{1}{2}, -1\right)$. **13.** Opposite sides are parallel (two sides have slope $\frac{2}{5}$ and two have slope $-\frac{7}{6}$).
14. Their midpoints coincide at (1, 0), and one slope is 3 and the other is $-\frac{1}{3}$. **15. a)** ED = EF = $\sqrt{80}$ and so $\triangle DEF$ is isosceles. **b)** The line segment joining the midpoints of the equal sides has slope –1 and length $\sqrt{8}$ or about 2.83, and the third side has slope –1 and length $\sqrt{32}$ or about 5.66. **16. a)** Opposite sides are parallel and adjacent sides are perpendicular (two sides have slope –2 and two have slope $\frac{1}{2}$). **b)** Each diagonal has midpoint (0.5, 2) and so they bisect each other. Each diagonal has length 5.
17. a) Opposite sides of the quadrilateral formed from the midpoints are parallel (two sides have slope $\frac{4}{3}$ and two have slope $-\frac{4}{3}$) and all sides have length 5. **b)** One diagonal is vertical and the other is horizontal; so they are perpendicular. Their midpoints coincide at (1, –1); so they bisect each other. **18. a)** $x + 2y - 2 = 0$ **b)** $4x + y + 5 = 0$ **c)** $x - 2y = 0$ **19.** $\left(\frac{5}{7}, \frac{3}{7}\right)$ **20.** $\left(\frac{5}{3}, 1\right)$
21. $4x - 2y + 7 = 0$ **22.** The right bisector of PQ has equation $x + 3y = 0$, which passes through the origin. **23. a)** 3.5 **b)** 0.4 **c)** 3.8 **d)** 5.7 **e)** 4.5 **f)** 0.9 **24. a)** 5.7 **b)** 4.5 **c)** 6.0 **25.** 7 **26.** 5 **27. a)** $\sqrt{10}$ **b)** 10

Chapter Test pp. 116–117

1. a) 5 **b)** $\sqrt{29}$ **2. a)** $x^2 + y^2 = 9$ **b)** $x^2 + y^2 = 49$ **3. a)** 10 **b)** $\sqrt{15}$ **4.** 4.9 **5.** 17 **6. a)** scalene **b)** 13.7 **7.** (–5, –1) **8.** (–3, –9) **9.** The midpoint is $\sqrt{10}$ units from each vertex. **10.** AB and DC both have slope $-\frac{3}{4}$, and the slopes of BC and AD are different. **11. a)** Opposite sides are parallel and adjacent sides are perpendicular (two have slope $\frac{3}{2}$ and two have slope $-\frac{2}{3}$) and all sides have length $\sqrt{13}$. **b)** The midpoints of the diagonals coincide at $(\frac{1}{2}, \frac{3}{2})$; so they bisect each other. Their slopes are –5 and $\frac{1}{5}$; so they are perpendicular. Each diagonal has length $\sqrt{26}$. **12.** Opposite sides of the quadrilateral formed by joining the midpoints are parallel (two sides have slope 0 and two have slope –3). **13.** $x - 4y + 5 = 0$ **14.** (3, 2) **15. a)** 2.1 **b)** 3.1 **16.** 3.8 **17. b)** 4.5

Problem Solving p. 119

Applications and Problem Solving **1. a)** 90 **b)** 160 **c)** 204 **d)** 385 **2.** 987 **3. a)** $y = x + 4$; 13, 16, 25 **b)** $y = 2x + 1$; 17, 12, 101 **c)** $x + y = 9$; 3, 8, 0 **d)** $y = x - 7$; 5, 2, 7 **e)** $y = x^2 + 1$; 6, 401, 10 001 **f)** $y = 4x - 1$; 39, 16, 119 **4. a)** 6 **b)** 3 **5. a)** 156 **b)** 1260 **6. a)** 41, 82, 81 **b)** 42, 68, 110 **c)** 37, 50, 65 **7.** A: $p - q$, –11, 5, 3; B: $q - p$, 11, –5, –3; C: $2p + q$, –4, –2, –12; D: $p^2 - q^2$, –11, –15, –27; E: $pq + 1$, –29, –3, 19 **8. a)** 146 **b)** 21 316 **9. a)** 6 **b)** 4

Problem Solving p. 122

2. 32 **3.** G, P, W; R **4. a)** It is about 1.25 times the surface area of Pluto, assuming both bodies are spherical. **b)** about 540 times **5.** 43 **6. a)** 1 **b)** 2 **8.** L-shape or Z-shape **9. b)** The square is being rotated 90° counterclockwise. **c)** same as square 3 **d)** same as square 1 **10.** $\frac{1}{57}$ **11. a)** 10 **b)** 10

Cumulative Review p. 123

Chapter 1 **1. a)** (–14, –41) **b)** (0.5, –3) **2. a)** (–1, 1) **b)** (1, 0) **3. a)** (2, 2) **b)** infinitely many solutions **c)** (–3, –4) **d)** $(0, \frac{1}{2})$ **4.** 600 g portobello, 400 g oyster