

Chapters 1–9 Cumulative Review

1. To verify if the given point is a solution, use the values of x and y in both equations. If the values work in both equations, then the point is a solution.

- a) Yes b) No

2. \$238.36

3. a) $\frac{4}{5}$ b) $\frac{3}{5}$

c) $\frac{3}{5}$ d) $\frac{4}{5}$

e) $\frac{4}{3}$ f) $\frac{3}{4}$

4. a) 64 b) -625

c) 49 d) $-\frac{27}{5}$

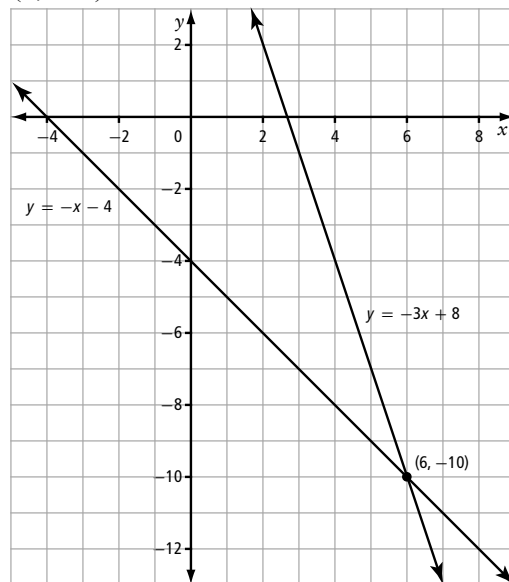
e) $\frac{3}{64}$ f) $-\frac{1}{125}$

5. a) $-56n^2 + 102n - 27$

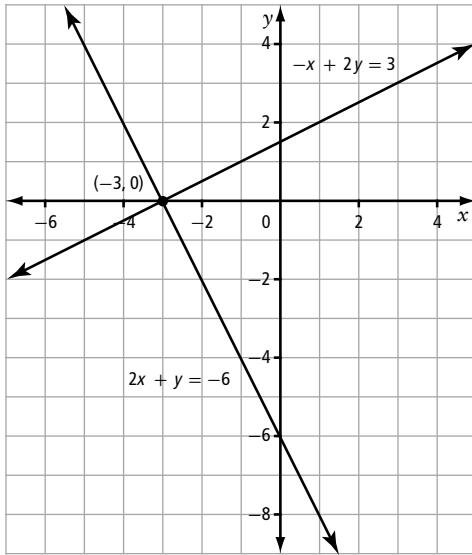
b) $-4s^4 - 6s^3 + 21s^2 + 13s - 15$

6. Example: It takes Jon 5 s to reach the bottom of the first hill on his bike. For a few seconds, Jon pedals to maintain his speed on a flat section of road. He then begins to go down a second hill and continues to accelerate. At the bottom of the hill, the road rises up. Jon coasts up the third hill as his speed slows. At the top, Jon maintains his speed by pedalling until he reaches a slight decline, at which point he begins to accelerate again. He then maintains this speed by pedalling.

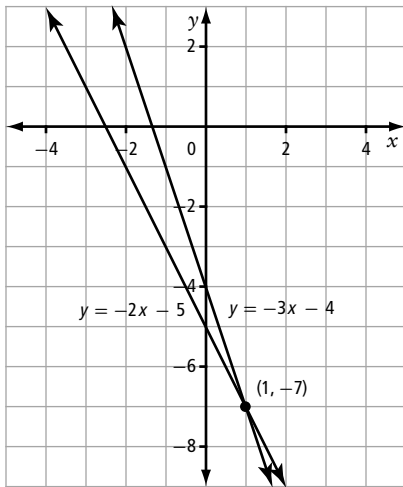
7. a) (6, -10)



b) $(-3, 0)$



c) $(1, -7)$



8. a) 26.2° b) 67.4°
 c) 14.3°
9. a) slope is -5 , y -intercept is $(0, 8)$
 b) slope is $\frac{3}{7}$, y -intercept is $(0, -\frac{10}{7})$
10. a) 2674.75 cm^2 b) 133.88 in.^2
 c) $10\,908 \text{ cm}^2$ d) 3019.07 cm^2
11. a) domain: $\{x|x \in \mathbb{R}\}$; range: $\{y|y \in \mathbb{R}\}$;
 intercepts are $(-1, 0), (0, -2.5)$; slope is $-\frac{5}{2}$;
 equation of the line in general form is $5x + 2y + 5 = 0$
 b) domain: $\{x|x \in \mathbb{R}\}$; range: $\{-4\}$;
 y -intercept is $(0, -4)$; slope is 0 ; equation
 of the line in general form is $y + 4 = 0$

12. a) $2ab^2$ b) $9xy^2$

c) pq

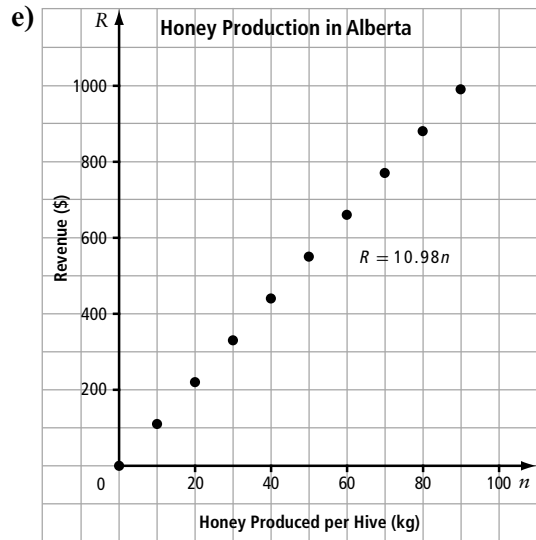
13. a) linear

b) Example: Let n represent the quantity, in kilograms, of honey sold. Let R represent the sales revenue, in dollars. In this situation, n is the independent variable and R is the dependent variable. In order to calculate the money earned from sales, first you need to know how much honey was sold. Therefore, revenue is dependent on the amount of honey that is sold.

c)

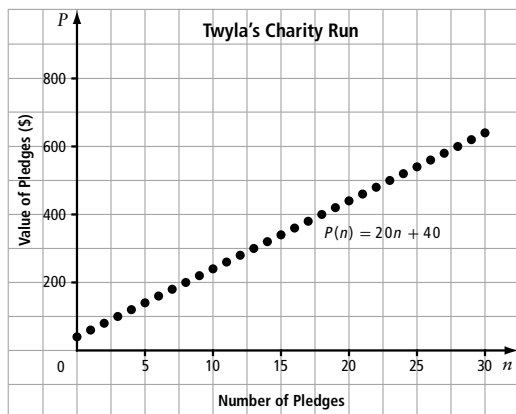
n	R (\$)	n	R (\$)
0	0	50	549.00
10	109.80	60	658.80
20	219.60	70	768.60
30	329.40	80	878.40
40	439.20	90	988.20

d) The data would be discrete if the beekeeper sells honey only in quantities that are in whole units. The data would be continuous if the beekeeper sells honey in quantities of any weight.



14. a) one solution
 b) no solution
 c) infinite number of solutions
15. 3.65cm ; Example: length of a nail
- 16 a) $(2, 4)$ b) $(0, -5)$
17. a) 14.6 b) 8.1
 c) 106.7

18. a) $x^{\frac{23}{5}}$ b) $\frac{1}{64}$
 c) z^4 d) $\frac{1}{5p^{\frac{5}{2}}}$
 e) $x^{200}y^{125}$ f) $\frac{x^{\frac{9}{4}}(0.16)^{\frac{3}{4}}}{y^{\frac{9}{2}}}$
19. a) $(4x - 1)(x + 2)$
 b) $(x - 3)(x - 6)$
 c) $-3(2m - 3n)(4m - n)$
 d) $(7x + 2y)(5x - 3y)$
 e) $12t(s + 6)(s - 4)$
20. a) $(4, -2)$ b) $(-1, 8)$
21. 176 miles; 50 km; 66 ft; 213 m
22. a) 0.67 ft b) 5.85 cm
 c) 4.33 m d) 9.40 cm
23. a) $\frac{4}{9}, 0.777\dots, \sqrt[3]{634}, \sqrt{82}$; The last two numbers are irrational.
 b) $\sqrt[5]{67}, \sqrt[4]{1296}, 14\frac{1}{3}, \sqrt{289}$; $\sqrt[5]{67}$ is irrational.
24. $[-18.4, 69.8]$
25. a) slope-intercept form: $y = 3x + 5$;
 general form: $3x - y + 5 = 0$
 b) slope-intercept form: $y = \frac{3}{4}x - \frac{45}{4}$;
 general form: $3x - 4y - 45 = 0$
26. a) $(c - 13)(c + 13)$
 b) $(9 + 4y^2)(3 - 2y)(3 + 2y)$
 c) $7(5h - 12f)(5h + 5f)$
 d) $(x - 4)(x + 4)(x - 5)(x + 5)$
27. a) Example: domain: $\{x \mid 0 \leq x \leq 30, x \in \mathbb{N}\}$;
 range: $\{y \mid y \geq 40, y \in \mathbb{N}\}$



- b) If there were 9 pledges, there would be a total of \$220 in funds.
 c) 24 pledges

- d) This situation depicts a function because for every value in the domain there is a unique value in the range.
28. $y = \frac{5}{4}x + \frac{5}{2}$
29. a) $(3s - 9)^2$ b) $s(4s + 12)^2$
 c) $(16 - 5y)^2$
30. a) 15.2 cm; 152 mm b) 5.98 in.
 c) No, it is not necessary to measure the figure three times. It only needs to be measured once. That measurement can then be converted to the other required units.
31. 6.3 ft
32. a) $2\sqrt{10}$ b) $3\sqrt{2}$
 c) $3\sqrt[3]{4}$ d) $3\sqrt[4]{2}$
33. A: undefined; B: $-\frac{3}{5}$; C: $\frac{1}{5}$; D: 5; E: 0