Lesson 6.1.2

6-16. See below:

a. A plane.

b. Yes, because 5(4) + 8(5) + 10(–2) = 40

c. Teams plot points on their graphs.

d. • Yes (the solutions are infinite).
• Infinite solutions.
• All points within the plane are solutions.
• A plane

6-17. See below:

a. It is a line, because the equation is a first-degree polynomial.

b. Answers vary.

6-18. See below:

a. A plane

b. Possible strategies: finding the x-, y-, and z-intercepts; graphing the three two-variable equations that result from letting $x = 0$, $y = 0$, or $z = 0$; etc.

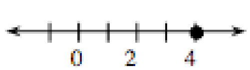
6-19. See below:

a. a plane with intercepts (20, 0, 0), (0, 65, 0), (0, 0, 52)

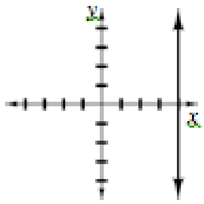
b. A plane with intercepts (–9, 0, 0), (0, 12, 0) and parallel to the z-axis.

6-20. See below:

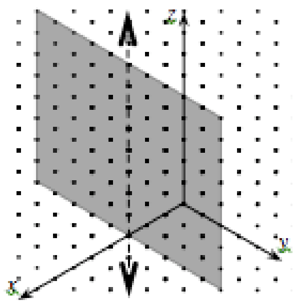
a. Solution shown below.



b. Solution shown below.



c. A plane with intercept (4, 0, 0) and parallel to the *yz*-plane, shown below.



Review & Preview

6-21. See below:

a. (0, 10, 0), (0, 0, 4)

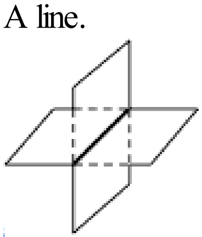
b. (8, 0, 0), (0, 6, 0), (0, 0, 12)

c. (0, 0, 4), (0, 0, –4), (2, 0, 0), (–8, 0, 0)

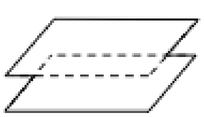
d. (0, 0, 6)

6-22. Sketches shown below:

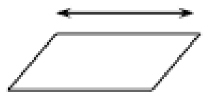
a. A line.



b. They do not intersect.



c. They do not intersect.



6-23. See below:

a. $y = -2(x + 4)^2 + 2$

b. $y = \frac{1}{x-2}$

c. $y = -x^3 + 3$

6-24. It is not the parent. The second equation does not have a vertical asymptote, and it has a maximum value, while $y = \frac{1}{x}$ does not (or there is no way to get the graph of $y = -\frac{1}{x^2+7}$ by shifting or stretching the graph of $y = \frac{1}{x}$).

6-25. See below:

a. $x = \frac{b}{3}$

b. $x = \frac{b}{5a}$

c. $x = \frac{b}{1+a}$

6-26. See below:

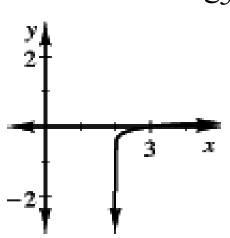
a. No, input equals output only if $x \geq 0$.

b. The output is the absolute value of the input value.

c. $n + 2$, $n^2 - 4$, $|n|$

d. Because $\sqrt{x^2} = |x|$.

6-27. It is the $\log_5(x)$ graph shifted 2 units to the right. See graph below.



6-28. See below:

a. 254,000 people/year

b. 1,574,000 people/year

c. 1960 to 2010

6-29. See below:

a. –7

b. –102

c. –102

d. –132

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