3-57. See the Lesson 3.2.1 Resource Page for solutions.

3-58. The sum or difference of two linear functions will be a line, possibly a horizontal line.

3-59. The graph will be a parabola, provided neither of the functions is a constant function.

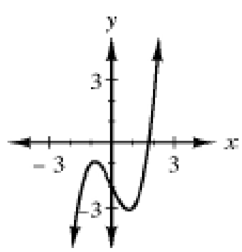
3-61. See below:

a. Integers are closed under both addition and subtraction. One possible explanation: If you start at an integer on the number line, and add or subtract an integer, you will always step to the left or right along the integers; you never end up between integers or off the line. Since multiplication is just repeated addition, the integers are also a closed set under multiplication. However, the integers are not closed under division. For example, $5 \div 2$ is not an integer.

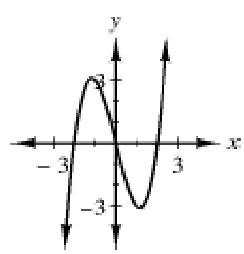
b. You will always get a polynomial when you add, subtract, or multiply two polynomials. One possible explanation: When you add or subtract polynomials you combine like terms. You are not changing any variable terms—you are just adding or subtracting real number coefficients. When you multiply the terms of polynomials (like in an area model) you will always multiply two real number coefficients (resulting in a real number) and two powers of x (resulting in a power of x); that results in a sum of terms that contain a coefficient and a power of x, in other words, a single-variable polynomial.

3-62. See below:

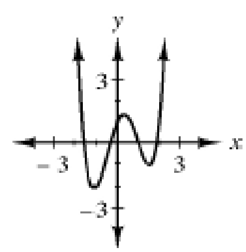
a. $p(x)+q(x)$



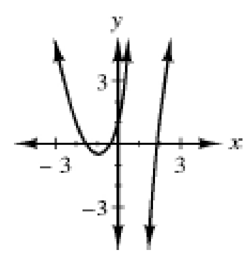
b. $p(x)-q(x)$



c. $p(x)\cdot q(x)$



d. $\frac{p(x)}{q(x)}$



Review & Preview

3-63. odd numbers; 46^{th} term: 91; n^{th} term: $2n-1$

3-64. after 44 minutes

3-65. See below:

a. 1.03

b. $f(n) = 10.25(1.03)^n$

c. \$13.78

3-66. $(y-2)(y-2)(y-2)$

3-67. See below:

a. $x^{1/5}$

b. x^{-3}

c. $\sqrt[3]{x^2}$

d. $x^{-1/2}$

e. $\frac{1}{xy^8}$

f. $\frac{1}{m^3}$

g. $xy^3\sqrt{x}$

h. $\frac{1}{81x^6y^{12}}$

3-68. Yes, he can.

a. $x = 2$

b. Divide both sides by 100.

3-69. See below:

a. $5m^2 + 9m - 2$

b. $-x^2 + 4x + 12$

c. $25x^2 - 10xy + y^2$

d. $6x^2 - 15xy + 12x$