10.R.1 Exercises

Concept Check

True/False. Determine whether each statement is true or false. If a statement is false, explain how it can be changed so the statement will be true. (**Note:** There may be more than one acceptable change.)

1. When two binomials are in the form of the sum and difference of the same term, the product will be a trinomial.

2. When the two binomials being multiplied together are the same, the product will be a trinomial.

3. Perfect square trinomials result from squaring a binomial sum or a binomial difference.

4. When finding the product of two binomials that are in the form of the sum and difference of the same two terms, the FOIL method and the difference of two squares formula will produce different results.

Practice

Find each product and identify any that are either the difference of two squares or a perfect square trinomial.

5. $(x-7)^2$

6. $(x+12)(x-12)$

7. $(x+4)(x+4)$

8. $(3x+7)^2$

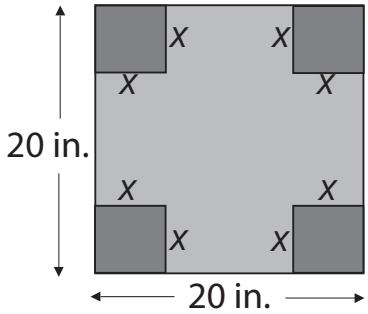
9. $(3x-2)(3x-2)$

10. $(5x-9)(5x+9)$

Applications

Solve.

11. ***Geometry:*** A square is 20 inches on each side. A square x inches on each side is cut from each corner of the square.



a. Represent the area of the remaining portion of the square in the form of a polynomial function $A(x)$.

b. Represent the perimeter of the remaining portion of the square in the form of a polynomial function $P(x)$.

12. ***Probability:*** In the case of binomial probabilities, if x is the probability of success in one trial of an event, then the expression $f(x)=15x^4(1-x)^2$ is the probability of 4 successes in 6 trials where $0 \le x \le 1$.

a. Represent the expression $f(x)$ as a single polynomial by multiplying the polynomials.

b. If a fair coin is tossed, the probability of heads occurring is $\frac{1}{2}$. That is, $x = \frac{1}{2}$. Find the probability of 4 heads occurring in 6 tosses.

Writing & Thinking

13. A square with sides of length $(x+5)$ can be broken up as shown in the diagram. The sums of the areas of the interior rectangles and squares is equal to the total area of the square: $(x+5)^2$. Show how this fits with the formula for the square of a sum.