Name _____ Date _____

LESSON 8.2

Practice B

For use with the lesson "Multiply Polynomials"

Find the product.

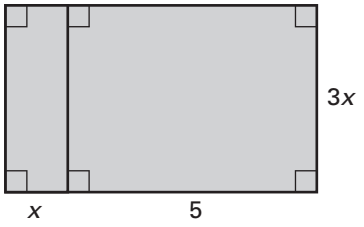
1. $x^2(6x^2 - 3x - 1)$
2. $-5a^3(4a^4 - 3a + 1)$
3. $4d^2(-2d^3 + 5d^2 - 6d + 2)$
4. $(3x + 1)(2x - 5)$
5. $(2y + 3)(y - 5)$
6. $(6a - 3)(4a - 1)$
7. $(b - 8)(5b - 2)$
8. $(8m + 7)(2m + 3)$
9. $(-p + 2)(3p^2 + 1)$
10. $(2z - 7)(-z + 3)$
11. $(-3d + 10)(2d - 1)$
12. $(n + 1)(n^2 + 4n + 5)$
13. $(w - 3)(w^2 + 8w + 1)$
14. $(2s + 5)(s^2 + 3s - 1)$
15. $(x^2 - 4xy + y^2)(5xy)$

Simplify the expression.

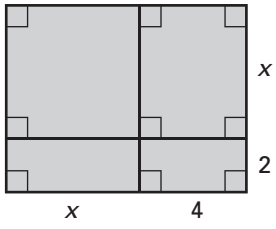
16. $a(3a + 1) + (a + 1)(a - 1)$
17. $(x + 2)(x + 5) - x(4x - 1)$
18. $(m + 7)(m - 3) + (m - 4)(m + 5)$

Write a polynomial for the area of the shaded region.

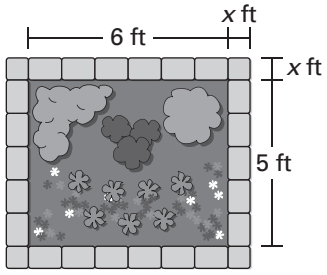
19.



20.



21. **Flower Bed** You are designing a rectangular flower bed that you will border using brick pavers. The width of the border around the bed will be the same on every side, as shown.



   a. Write a polynomial that represents the total area of the flower bed and the border.

   b. Find the total area of the flower bed and border when the width of the border is 1.5 feet.

22. **School Enrollment** During the period 1995–2002, the number S of students (in thousands) enrolled in school in the U.S. and the percent P (in decimal form) of this amount that are between 7 and 13 years old can be modeled by

$S = 32.6t^3 - 376.45t^2 + 1624.2t + 66{,}939$

and

$P = 0.000005t^4 - 0.0003t^3 + 0.003t^2 - 0.007t + 0.4$

where t is the number of years since 1995.

   a. Find the values of S and P for $t = 0$. What does the product $S \cdot P$ mean for $t = 0$ in the context of this problem?

   b. Write an equation that models the number of students (in thousands) that are between 7 and 13 years old as a function of the number of years since 1995.

   c. How many students between 7 and 13 years old were enrolled in 1995?