Name _____ Date _____

LESSON 8.2

Practice C

For use with the lesson "Multiply Polynomials"

Find the product.

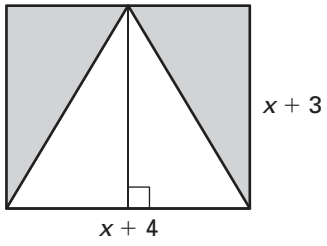
1. $-8y^3(2y^4 - 5y^2 + 3)$
2. $(b + 3)(3b^2 - 2b + 1)$
3. $(6w - 3)(4 - 3w)$
4. $(9m^3 + 1)(4m^2 - 1)$
5. $(2x^2 + 5x - 2)(x + 3)$
6. $(8n^2 - 1)(3n^2 - 4n + 5)$
7. $(3p^4 - 5)(2p^2 + 4)$
8. $(-8r^3 + 2)(6r^2 - 1)$
9. $(-5z^2 - 3)(-2z^2 + 9)$
10. $xy(x^2 + 2y)$
11. $-3x(2xy + 5y)$
12. $y^2(x^2y + y^2x)$
13. $(x - y)(5x + 6y)$
14. $(xy^2 + 70)(3x + 2y)$
15. $(x^2 - 4xy + y^2)(5xy)$

Simplify the expression.

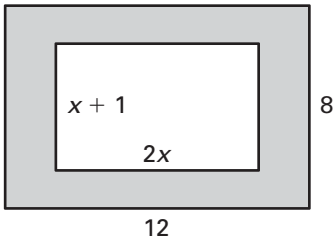
16. $(7n + 1)(3n + 5) + (4n - 2)(3n + 1)$
17. $5w^2(3w^3 - 2w + 1) + w^4(w^2 - 2w + 3)$

Write a polynomial for the area of the shaded region.

18.



19.



20. **Car Production** During the period 1995–2002, the number of cars C (in thousands) produced in the U.S. and the average price P (in dollars) spent on one of these cars can be modeled by

$C = -198.02t + 6320.49$ and $P = 1.67t^4 - 22.28t^3 + 44.84t^2 + 531.16t + 16{,}860$

where t is the number of years since 1995.

   a. Write an equation that models the total amount spent (in thousands of dollars) on new cars in the U.S. by consumers as a function of the number of years since 1995.

   b. How much money was spent in the U.S. on new cars by consumers in 1995?

21. **Sporting Goods Equipment** During the period 1990–2002, the amount of money E (in millions of dollars) spent on sporting goods equipment in the U.S. and the percent P (in decimal form) of this amount that is spent on exercise equipment can be modeled by

$E = -5.56t^4 + 149.93t^3 - 1314.65t^2 + 4396.75t + 14{,}439.09$

and $P = -0.00002t^4 - 0.0005t^3 + 0.0028t^2 + 0.001t + 0.126$

where t is the number of years since 1990.

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

   b. Write an equation that models the amount spent (in millions of dollars) on exercise equipment as a function of the number of years since 1990.

   c. How much money was spent in the U.S. on exercise equipment in 1990?