Name _____ Date _____

LESSON 9.8

Practice B

For use with pages 606–613

Factor the expression.

1. $4x(x + 5) - 3(x + 5)$

2. $12(a - 3) - 2a(a - 3)$

3. $w^2(w + 8) - 5(w + 8)$

4. $2b^2(b + 6) + 3(b + 6)$

5. $y(15 + x) - (x + 15)$

6. $3x(4 + y) - 6(4 + y)$

Factor the polynomial by grouping.

7. $x^3 + x^2 + 5x + 5$

8. $y^3 - 14y^2 + y - 14$

9. $m^3 - 6m^2 + 2m - 12$

10. $p^3 + 9p^2 + 4p + 36$

11. $t^3 + 12t^2 - 2t - 24$

12. $3n^3 - 3n^2 + n - 1$

Factor the polynomial completely.

13. $7x^3 + 28x^2$

14. $4m^3 - 16m$

15. $-16p^3 - 2p$

16. $48r^3 - 30r^2$

17. $15y - 60y^2$

18. $18xy - 24x^2$

19. $5m^2 + 20m + 40$

20. $6x^2 + 6x - 120$

21. $4z^3 - 4z^2 - 8z$

22. $9x^3 + 36x^2 + 36$

23. $x^3 + x^2 + 5x + 5$

24. $d^3 + 4d^2 + 5d + 20$

Solve the equation.

25. $3x^2 + 18x + 24 = 0$

26. $10x^2 = 250$

27. $4m^2 - 28m + 49 = 0$

28. $12x^2 + 18x + 6 = 0$

29. $18x^2 - 48x + 32 = 0$

30. $-18x^2 - 60x - 50 = 0$

31. **Countertop** A countertop will have a hole drilled in it to hold a cylindrical container that will function as a utensil holder. The area of the entire countertop is given by $5x^2 + 12x + 7$. The area of the hole is given by $x^2 + 2x + 1$. Write an expression for the area in factored form of the countertop that is left after the hole is drilled.

32. **Film Canister** A film canister in the shape of a cylinder has a height of 8 centimeters and a volume of 32π cubic centimeters.

a. Write an equation for the volume of the film canister.

b. What is the radius of the film canister?

33. **Badminton** You hit a badminton birdie upward with a racket from a height of 2 feet with an initial velocity of 8 feet per second.

a. Write an equation that models this situation.

b. How high is the birdie at 0.1 second?

c. How high is the birdie at 0.25 second?

d. How long will it take the birdie to reach the ground?