Use the Distributive Property to factor each polynomial.

15. $16t - 40y$

ANSWER:

$8(2t - 5y)$

17. $2k^2 + 4k$

ANSWER:

$2k(k + 2)$

19. $4a^2b^2 + 2a^2b - 10ab^2$

ANSWER:

$2ab(2ab + a - 5b)$

Factor each polynomial.

21. $fg - 5g + 4f - 20$

ANSWER:

$(g + 4)(f - 5)$

23. $hj - 2h + 5j - 10$

ANSWER:

$(h + 5)(j - 2)$

25. $45pq - 27q - 50p + 30$

ANSWER:

$(9q - 10)(5p - 3)$

27. $3dt - 21d + 35 - 5t$

ANSWER:

$(3d - 5)(t - 7)$

29. $21th - 3t - 35h + 5$

ANSWER:

$(3t - 5)(7h - 1)$

31. $5br - 25b + 2r - 10$

ANSWER:

$(r - 5)(5b + 2)$

33. $5gf^2 + g^2f + 15gf$

ANSWER:

$gf(5f + g + 15)$

35. $27cd^2 - 18c^2d^2 + 3cd$

ANSWER:

$3cd(9d - 6cd + 1)$

37. $48tu - 90t + 32u - 60$

ANSWER:

$2(8u - 15)(3t + 2)$

Solve each equation. Check your solutions.

39. $3b(9b - 27) = 0$

ANSWER:

$0, 3$

40. $2n(3n + 3) = 0$

ANSWER:

$0, -1$

41. $(8z + 4)(5z + 10) = 0$

ANSWER:

$-\dfrac{1}{2}, -2$

42. $(7x + 3)(2x - 6) = 0$

ANSWER:

$-\dfrac{3}{7}, 3$

43. $b^2 = -3b$

ANSWER:

$0, -3$

44. $a^2 = 4a$

ANSWER:

$0, 4$

46. **FIREWORKS** A ten-inch fireworks shell is fired from ground level. The height of the shell in feet is given by the formula $h = 263t - 16t^2$, where t is the time in seconds after launch.

    a. Write the expression that represents the height in factored form.

    b. At what time will the height be 0? Is this answer practical? Explain.

    c. What is the height of the shell 8 seconds and 10 seconds after being fired?

    d. At 10 seconds, is the shell rising or falling?

    ANSWER:

    a. $t(263 - 16t)$

    b. 0 and 16.4375 seconds; Yes, the shell starts at ground level and is in the air for 16.4375 seconds before landing on the ground again.

    c. 1080 ft; 1030 ft

    d. The shell has begun to fall.