Warm - Up

- 1. Simplify: $2x^{-2}y(3xy^3)^2$
- 2. Name the following polynomial by its degree and number of terms: $3x^3 + 4x^2 6x + 10$

$$3.(3x^4 - 6 + 5x) - (3 + 2x - 7x^4)$$

- $4.2x^3(3x 6)$
- 5. Find the factors of ac that multiply to b:

$$6x^2 - 5x - 4$$

Daily Practice - Pg. 497

- 1. 14x⁶
- 3. 3r5s5t5
- 5. $21x^7y^3$
- 8. 6a3b + 9ab4
- $10. -3x^3 + 12x^2 18x$
- 12. 20m⁴n⁵ 5m³n⁶
- 25. a. 2x² 3x
 - b. 20 in²

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Multiply polynomials.

To multiply a binomial by a binomial, you can apply the Distributive Property more than once:

$$(x + 3)(x + 2) = x(x + 2) + 3(x + 2)$$
 Distribute x and 3.
 $= x(x + 2) + 3(x + 2)$ Distribute x and 3 again.
 $= x(x) + x(2) + 3(x) + 3(2)$ Multiply.
 $= x^2 + 2x + 3x + 6$ Combine like terms.
 $= x^2 + 5x + 6$

Practice...

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

$$2.(x+4)(x+6)$$

Example 3A: Multiplying Binomials

Multiply.

$$(s+4)(s-2)$$

$$(x-4)^2$$
 $(x-4)^2$ $(x-4)^2$ $(x-4)^2$ $(x-4)^2$ $(x-4)^2$ $(x-4)^2$ $(x-4)^2$ $(x-6)^2$

$$(8m^2 - n)(m^2 - 3n)$$

 $8m^4 - 25m^2 + 3n^2$
 $8m^4 - 25m^2 + 3n^2$

Helpful Hint

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In the expression $(x + 5)^2$, the base is (x + 5). $(x + 5)^2 = (x + 5)(x + 5)$

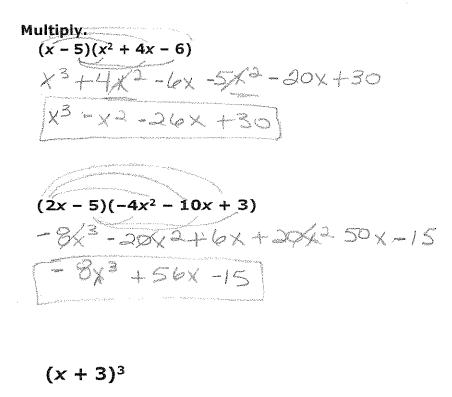
Multiply.

$$(x-3)^2$$

$$(2a - b^2)(a + 4b^2)$$

 $\frac{(2x+1)^2}{2x+1}$

Example 4A: Multiplying Polynomials



Example 4D: Multiplying Polynomials

Multiply.
$$(3x + 1)(x^3 - 4x^2 - 7)$$

Multiply.

$$(x+3)(x^2-4x+6)$$

Multiply.

1.
$$(3x + 2)(x^2 - 2x + 5)$$

2.
$$(2x + 1)^3$$

Example 5: Application

The width of a rectangular prism is 3 feet less than the height, and the length of the prism is 4 feet more than the height.

a. Write a polynomial that represents the area of the base of the prism.

b. Find the area of the base when the height is 5 ft.

Check it Out! Example 5

The length of a rectangle is 4 meters shorter than its width.

a. Write a polynomial that represents the area of the rectangle.

b. Find the area of a rectangle when the width is 6 meters.

Daily Practice

7.7B Pg. 497

Multiply.

41.
$$-5x(2x^2-3x-1)$$

42.
$$-2a^2b^3(3ab^2-a^2b)$$

41.
$$-5x(2x^2-3x-1)$$
 42. $-2a^2b^3(3ab^2-a^2b)$ **43.** $-7x^3y \cdot x^2y^2(2x-y)$

44.
$$(x+5)(x-3)$$
 45. $(x+4)^2$

45.
$$(x+4)$$

46.
$$(m-5)^2$$

47.
$$(5x-2)(x+3)$$

48.
$$(3x-4)^2$$

49.
$$(5x+2)(2x-1)$$

50.
$$(x-1)(x-2)$$

51.
$$(x-8)(7x+4)$$

52.
$$(2x+7)(3x+7)$$

52.
$$(2x+7)(3x+7)$$

$$34. (2x + 3)x^2 - 4x + 3)$$

53.
$$(x+2)(x^2-3x+5)$$
 54. $(2x+5)(x^2-4x+3)$ **55.** $(5x-1)(-2x^3+4x-3)$

56.
$$(x-3)(x^2-5x+6)$$
 57. $(2x^2-3)(4x^3-x^2+7)$ **58.** $(x-4)^3$ **59.** $(x-2)(x^2+2x+1)$ **60.** $(2x+10)(4-x+6x^3)$ **61.** $(1-x)^3$

61.
$$(1 - x)^3$$

- **62. Geometry** The length of the rectangle at right is 3 feet longer than its width.
 - a. Write a polynomial that represents the area of the rectangle.
 - b. Find the area of the rectangle when the width is 5 feet.

