



## 7-1 Additional Practice

### Adding and Subtracting Polynomials

What is the degree of each polynomial?

1.  $-4x^2y$

3

2.  $3x^4 - 2x^3 + 5x^2 + 6x - 12$

4

3.  $x^2 + 5x - 4$

2

Write each polynomial in standard form.

4.  $3x^2 - 5x - 4 + x^3$

$x^3 + 3x^2 - 5x - 4$

5.  $-7 + 2x - x^5 + 4x^4 + 2x^3$

$-x^5 + 4x^4 + 2x^3 + 2x - 7$

6.  $9 - x^2 + 5x$

$-x^2 + 5x + 9$

Combine like terms and write each expression in standard form.

7.  $-5y + 3y^2 + 2y - 2y^2 - 9$

$y^2 - 3y - 9$

8.  $-2x^2 + x + 5x^3 + 4x + 2x^2$

$5x^3 + 5x$

9.  $x^2 - 5 + 2x + x^2$

$2x^2 + 2x - 5$

Add or subtract. Write each answer in standard form.

10.  $(4x^3 - 5x^2 + 3x - 8) + (2x^3 - 2x^2 + 6x + 12)$

$6x^3 - 7x^2 + 9x + 4$

11.  $(x^4 - 3x^3 + 5x^2 + x - 4) - (x^3 - 4x^2 - 11x + 10)$

$x^4 - 4x^3 + 9x^2 + 12x - 14$

12. The total length of the fence around a quadrilateral-shaped garden shown is  $3a^2 + 15a + 9$ . What expression represents the missing fence length?

$$\text{Total length} = \underline{5a} + (\underline{10a - 2}) + (\underline{a^2 - 7}) + ?$$

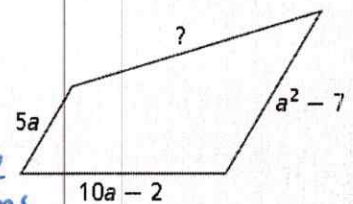
$$\text{Given Total length} = 3a^2 + 15a + 9$$

$$\therefore 3a^2 + 15a + 9 = 15a - 9 + a^2 + ?$$

$$? = (3a^2 + 15a + 9) - (15a - 9 + a^2)$$

$$= \boxed{2a^2 + 18}$$

Combining like terms





## 7-2 Additional Practice

### Multiplying Polynomials

Find each product.

1.  $2y^2(y^2 - 6y + 5)$

$$2y^4 - 12y^3 + 10y^2$$

2.  $-x(2x^3 - x^2 + 6x - 8)$

$$-2x^4 + x^3 - 6x^2 + 8x$$

3.  $-3x(x^2 - 7x - 6)$

$$-3x^3 + 21x^2 + 18x$$

Multiply then simplify and write in standard form.

4.  $(2x - 4)(3x + 5)$

$$6x^2 + 10x - 12x - 20$$

$$6x^2 - 2x - 20$$

5.  $(2r - 3)^2$

$$(2r)^2 - 2(2r)(3) + 3^2$$

$$= 4r^2 - 12r + 9$$

6.  $(4y + 7)^2$

$$(4y)^2 + 2(4y)(7) + 7^2$$

$$= 16y^2 + 56y + 49$$

7.  $(x - 7)(x - 2)$

$$x^2 - 2x - 7x + 14$$

$$= x^2 - 9x + 14$$

8.  $(2x + 3)(3x - 2)$

$$6x^2 - 4x + 9x - 6$$

$$= 6x^2 + 5x - 6$$

9.  $(x - 4)(x^2 + 7x - 8)$

$$x^3 + 7x^2 - 8x - 4x^2 - 28x + 32$$

$$x^3 + 3x^2 - 36x + 32$$

10.  $(-2x^2 + 5)(x^3 - 8x - 6)$

$$-2x^5 + 16x^3 + 12x^2 + 5x^3 - 40x - 30$$

$$\Rightarrow -2x^5 + 21x^3 + 12x^2 - 40x - 30$$

11. A circular flower garden surrounds a sculpture on a square base as shown. What is an expression for the area of the flower garden? Area of a circle  $\pi r^2$  where  $r$  is the radius of the circle ( $6x$ )

Area of flower garden  
 = Area of circle -  
 Area of square

$$= \pi(6x)^2 - (4x)^2 = 36\pi x^2 - 16x^2 \text{ or}$$

