



## 3-2 Additional Practice

### Adding, Subtracting and Multiplying Polynomials

**Add or subtract the polynomials.**

- $(4x^3 + 2x + 2x^2 - 8) + (2x^3 + x^2 + 9)$
- $(y^3 + 6x^2y^2 - 4xy - 8) - (2y^3 - 7x^2y^2 - 2xy - y + 8)$
- $(9a^3b + 6ab - 4) - (10a^3b - 6a^2b^2 - 6)$

**Multiply the polynomials.**

- $-2cd(5c^2 - 5cd - d^2)$
- $(-2b + 4)(5b^2 - 4b + 2)$

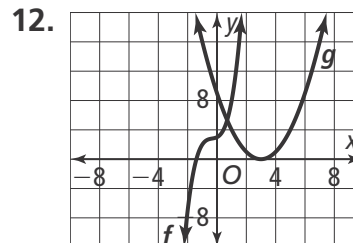
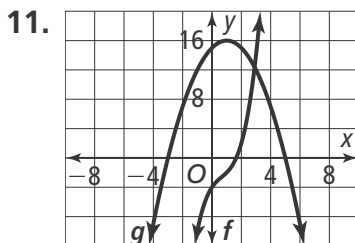
**Are the following polynomial sets open or closed?**

- $(x^2 + x - 4) - (x^2 + x + 8)$
- $(2 - x)(1 + 3x)$
- $(5b - 3c)(7b - 3c)$

**Write a Polynomial Function.**

- Write and simplify a polynomial expression to find the area of 4 circles. Each circle has a radius of  $(4a - 6)$ .
- If the length of a rectangle in terms of  $x$  centimeters is  $5x^2 + 4x - 4$  and its width is  $3x^2 + 2x + 6$  centimeters, what is the perimeter of the rectangle? Simplify.

**Compare the maximum values and the end behavior of the functions of  $f$  and  $g$ .**





## 3-2 Additional Practice

### Adding, Subtracting and Multiplying Polynomials

Add or subtract the polynomials.

1.  $(4x^3 + 2x + 2x^2 - 8) + (2x^3 + x^2 + 9)$

$$6x^3 + 3x^2 + 2x + 1$$

2.  $(y^3 + 6x^2y^2 - 4xy - 8) - (2y^3 - 7x^2y^2 - 2xy - y + 8)$

$$-y^3 + 13x^2y^2 - 2xy - y - 16$$

3.  $(9a^3b + 6ab - 4) - (10a^3b - 6a^2b^2 - 6)$

$$-a^3b + 6a^2b^2 + 6ab + 2$$

Multiply the polynomials.

4.  $-2cd(5c^2 - 5cd - d^2)$

$$-10c^3d + 10c^2d^2 + 2cd^3$$

5.  $(-2b + 4)(5b^2 - 4b + 2)$

$$-10b^3 + 28b^2 - 20b + 8$$

Are the following polynomial sets open or closed?

6.  $(x^2 + x - 4) - (x^2 + x + 8)$

Open

7.  $(2 - x)(1 + 3x)$

Open

8.  $(5b - 3c)(7b - 3c)$

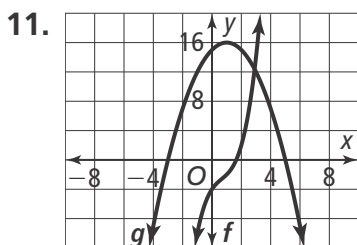
Open

Write a Polynomial Function.

9. Write and simplify a polynomial expression to find the area of 4 circles. Each circle has a radius of  $(4a - 6)$ .  $(64a^2 - 192a + 144)\pi$

10. If the length of a rectangle in terms of  $x$  centimeters is  $5x^2 + 4x - 4$  and its width is  $3x^2 + 2x + 6$  centimeters, what is the perimeter of the rectangle? Simplify.  $4(4x^2 + 3x + 1)$

Compare the maximum values and the end behavior of the functions of  $f$  and  $g$ .



Maximum  
value:

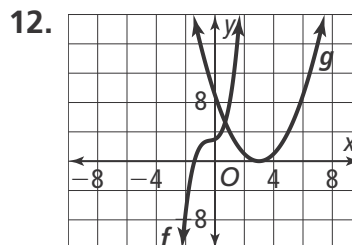
$$f(x) = 16$$

$$g(x) = \infty$$

End  
behavior:

$$f(x) = x \rightarrow \infty; y \rightarrow -\infty;$$
$$x \rightarrow -\infty; y \rightarrow -\infty;$$

$$g(x) \rightarrow \infty;$$
$$g(x) \rightarrow -\infty$$



Maximum  
value:

$$f(x) = \infty$$

$$g(x) = \infty$$

End behavior:

$$f(x) = x \rightarrow \infty;$$
$$y \rightarrow \infty; x \rightarrow -\infty;$$
$$y \rightarrow -\infty;$$

$$g(x) \rightarrow \infty; g(x)$$
$$\rightarrow -\infty$$