

## 2.5 PreQuiz: Operations on polynomials

1. Simplify the sum of these two polynomials:  $(3x^3 + 5x^2 + x + 6) + (x^3 - 2x^2 + 7x - 8)$
2. Given the two functions  $f(x) = 5x^3 + 8x^2 - x$  and  $g(x) = x^4 + 2x^3 + x^2 - 5$ , find their difference  $f(x) - g(x)$  as a polynomial in standard form.
3. Multiply the two polynomials  $f(x) = 2x + 5$  and  $g(x) = 2x^2 + 3x - 1$ . First complete the grid and then collect terms to find the product as a polynomial in standard form.

	$2x^2$	$+3x$	$-1$
$2x$			
$+5$			

4. Using subscript notation, write a recursive formula for the sequence 5, 10, 20, 40, 80, 160, ...
5. Using subscript notation, write a recursive formula for the sequence 11, 3, -5, -13, ...

6. Select all of the expressions that are equivalent to  $x^2 - 7x + 12$ .

(a)  $(x - 2)(x - 6)$

(e)  $(x - 4)(x + 3)$

(b)  $(x - 6)(x - 2)$

(f)  $(x + 3)(x + 4)$

(c)  $(x + 4)(x + 3)$

(g)  $(x - 4)(x - 3)$

(d)  $(x - 3)(x - 4)$

(h)  $x^2 + 7x - 12$

7. Select all solutions to the equation  $(2x - 1)(x + 5) = 0$ .

(a)  $x = 0.5$

(d)  $x = -0.5$

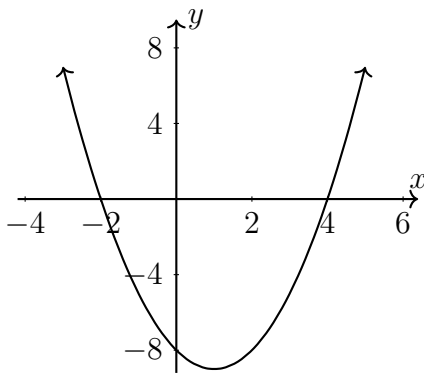
(b)  $x = -5$

(e)  $x = 5$

(c)  $x = 2.5$

(f)  $x = \frac{1}{2}$

8. Here is the graph of a quadratic function. Which of the following could be its equation?



(a)  $y = (x + 2)(x - 4)$

(c)  $y = (x + 2)(x + 4)$

(b)  $y = (x - 2)(x + 4)$

(d)  $y = (x - 2)(x - 4)$

9. Find all of the solutions to the equation  $x(x - 11)(3x - 8)(x + 3) = 0$ .

10. Without a calculator, evaluate each polynomial for the given value of  $x$ .

$$\begin{array}{ll} \text{(a) } f(x) = -x^3 + 12x^2 - x + 4, x = 1 & \text{(b) } g(x) = x^4 + x^3 + x^2, x = -1 \\ f(1) = & g(-1) = \end{array}$$

11. Use a calculator to find the value of  $h(x) = 2x^3 - 3x^2 + 5x + 2$  for  $x = -3$ .

$$h(-3) =$$

12. A polynomial  $A$  is used to model the value of an investment account. Two deposits were made which earned interest annually.

$$A(x) = 150x^4 + 300x^2$$

(a) The first deposit of \$150 was made four years ago. How much was the second deposit, and how long ago was it made?

(b) Find the value of  $A(x)$  for  $x = 1.05$  to the *nearest cent*.

(c) If the interest rate earned on the account is  $r = 7\frac{1}{2}\%$  what value of  $x$  would be used in the formula?