BECA / Huson / Algebra 2: Polynomials Name:
27 October 2023

2.7 Quiz: Operations on polynomials

1. Evaluate each polynomial for the given value of x.

   (a) $f(x) = -x^3 + 12x^2 - x + 4$, $x = 1$
   $f(1) =$

   (b) $g(x) = 2x^3 + 11x^2 - 3x + 15$, $x = -1$
   $g(-8) =$

2. The polynomial function A, shown below, is used to model the value of an investment account. Three deposits were made which earned interest annually.

$$A(x) = 200x^5 + 300x^4 + 150x^3$$

   (a) How much was the first deposit, and how long ago was it made?

   (b) If the polynomial is evaluated for $x = 1.04$, what interest rate would that represent *as a percentage*?

   (c) Find the value of $A(1.04)$ to the *nearest cent*.

A1-A.APR.1 Add, subtract, and multiply polynomials

3. Write a recursive formula for each sequence. Use subscript notation.

   (a) $3, -6, 12, -24, 48, \ldots$

   (b) $\frac{3}{4}, \frac{5}{4}, \frac{7}{4}, \frac{9}{4}, \ldots$

A1-A.APR.1 Add, subtract, and multiply polynomials

4. Find the sum in standard form $(x^3 - 4x^2 + 2x + 16) + (5x^3 - 2x^2 - 3x - 12)$

5. Find the difference $f(x) - g(x)$ as a polynomial in standard form, given $f(x) = x^4 + 2x^3 - x - 9$ and $g(x) = 2x^3 + x^2 - 3x - 11$.

6. Multiply the two polynomials $f(x) = 3x - 2$ and $g(x) = x^2 - 5x + 4$. First complete the grid and then collect terms to find the product as a polynomial in standard form.

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

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

(a) $(x - 2)(x - 6)$
(b) $(x - 6)(x - 2)$
(c) $(x + 4)(x + 3)$
(d) $(x - 3)(x - 4)$
(e) $(x - 4)(x + 3)$
(f) $(x + 3)(x + 4)$
(g) $(x - 4)(x - 3)$
(h) $x^2 + 7x - 12$

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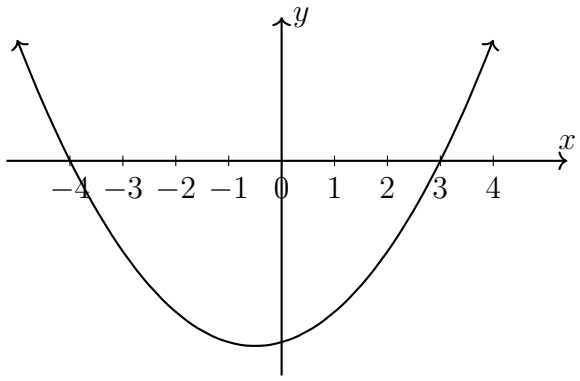
8. Select all solutions to the equation $(x-3)(2x+1)=0$.

   (a) $x=-\frac{1}{2}$
   (b) $x=3$
   (c) $x=-2$
   (d) $x=-0.5$
   (e) $x=-3$
   (f) $x=\frac{1}{2}$

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



   (a) $y=(x+3)(x-4)$
   (b) $y=(x-3)(x+4)$
   (c) $y=(x+3)(x+4)$
   (d) $y=(x-3)(x-4)$

10. Find all of the solutions to the equation $x(x+5)(2x-9)(x-13)=0$.