Algebra 2   Name: _____
Using Synthetic Division to Evaluate Functions   Date: _____

Show all steps to justify your answer. Write the answer in the correct notation.

1. Evaluate the function for the given value of x. $$f(x) = -x^2 - 8x + 30; x = -1$$	2. Evaluate the function for the given value of x. $$f(x) = 3x^2 + 2x - 20; x = 3$$
3. Evaluate the function for the given value of x. $$f(x) = x^3 - 2x^2 + 4x + 3; x = 2$$	4. Evaluate the function for the given value of x. $$f(x) = x^3 + x^2 - 3x + 9; x = -4$$
5. Evaluate the function for the given value of x. $$f(x) = x^3 - 6x + 1; x = 6$$	6. Evaluate the function for the given value of x. $$f(x) = -x^4 - x^3 - 2; x = 5$$

7. Divide using Synthetic Division. $(x^2 + 8x + 1) \div (x - 4)$	8. Divide using Synthetic Division. $(x^2 + 9) \div (x - 3)$
9. Divide using Synthetic Division. $(3x^3 - 5x^2 - 2) \div (x - 1)$	10. Divide using Synthetic Division. $(x^4 - 5x^3 - 8x^2 + 13x - 12) \div (x - 6)$
11. Divide using Long Division. $(x^2 + x - 17) \div (x - 4)$	12. Divide using Long Division. $(7x^3 + x^2 + x) \div (x^2 + 1)$

Answers:

$x + 3 + \dfrac{18}{x - 3}$	$x + 5 + \dfrac{3}{x - 4}$	$x + 12 + \dfrac{49}{x - 4}$	11	37	$x^3 + x^2 - 2x + 1 + \dfrac{-6}{x - 6}$
181	-752	-27	$7x + 1 + \dfrac{-6x - 1}{x^2 + 1}$	$3x^2 - 2x - 2 + \dfrac{-4}{x - 1}$	13