Lesson 5.5 Worksheet

Name: _____

Divide using polynomial long division.

1.) $(3x^2 - 11x - 26) \div (x - 5)$

2.) $(x^3 + 3x^2 + 3x + 2) \div (x - 1)$

3.) $(3x^3 + 11x^2 + 4x + 1) \div (x^2 + x)$

4.) $(5x^4 - 2x^3 - 7x^2 - 39) \div (x^2 + 2x - 4)$

Divide using synthetic division.

5.) $(2x^2 - 7x + 10) \div (x - 5)$

6.) $(x^2 + 9) \div (x - 3)$

7.) $(x^3 - 5x^2 - 2) \div (x - 4)$

8.) $(x^4 - 5x^3 - 8x^2 + 13x - 12) \div (x - 6)$

Given polynomial $f(x)$ and a factor of $f(x)$, factor $f(x)$ completely.

9.) $f(x) = x^3 - 10x^2 + 19x + 30;\ \ (x - 6)$

10.) $f(x) = x^3 + 18x^2 + 95x + 150;\ \ (x + 10)$

11.) $f(x) = 2x^3 - 15x^2 + 34x - 21;\ \ (x - 1)$

12.) $f(x) = 3x^3 - 2x^2 - 61x - 20;\ \ (x - 5)$

Given polynomial function f and a zero of f, find the other zeros of the function.

13.) $f(x) = x^3 - 2x^2 - 21x - 18;\ \ \text{zero: } -3$

14.) $f(x) = 4x^3 - 25x^2 - 154x + 40;\ \ \text{zero: } 10$

15.) $f(x) = 10x^3 - 81x^2 + 71x + 42;\ \ \text{zero: } 7$

16.) $f(x) = 3x^3 + 34x^2 + 72x - 64;\ \ \text{zero: } -4$