Name: _____ Date: _____

BLM 3–5

Section 3.3 Extra Practice

1. What is the corresponding binomial factor of a polynomial $P(x)$ given the value of the zero?

a) $P(6) = 0$

b) $P(-7) = 0$

c) $P(2) = 0$

d) $P(-5) = 0$

2. Determine whether $x - 1$ is a factor of each polynomial.

a) $-4x^4 - 3x^3 + 2x^2 - x + 5$

b) $7x^5 + 5x^4 + 23x^2 + 8$

c) $2x^4 - 3x^3 - 5x^2 + 6x - 1$

d) $2x^3 + 5x^2 - 7$

3. State whether each polynomial has $x + 2$ as a factor.

a) $-3x^3 + 2x^2 + 10x + 5$

b) $5x^2 + 6x - 8$

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

d) $3x^3 - 12x - 2$

4. What are the possible integral zeros of each polynomial?

a) $P(n) = n^3 - 2n^2 - 5n + 12$

b) $P(p) = p^4 - 3p^3 - p^2 + 7p - 6$

c) $P(z) = z^4 + 4z^3 + 3z^2 + 8z - 25$

d) $P(y) = y^4 - 11y^3 - 2y^2 + 2y + 10$

5. The factors of a polynomial are $x + 3$, $x - 4$, and $x + 1$. Describe how the zeros of the polynomial expression could be used to determine the zeros of the corresponding function.

6. Factor completely.

a) $x^3 + 2x^2 - 13x + 10$

b) $x^4 - 7x^3 + 3x^2 + 63x - 108$

c) $x^3 - x^2 - 26x - 24$

d) $x^4 - 26x^2 + 25$

7. Factor completely.

a) $x^3 + x^2 - 16x - 16$

b) $x^3 - 2x^2 - 6x - 8$

c) $k^3 + 6k^2 - 7k - 60$

d) $x^3 - 27x + 10$

8. Factor completely.

a) $x^4 + 4x^3 - 7x^2 - 34x - 24$

b) $x^5 + 3x^4 - 5x^3 - 15x^2 + 4x + 12$

9. Determine the value(s) of k so that the binomial is a factor of the polynomial.

a) $x^2 - 8x - 20$, $x + k$

b) $x^2 - 3x - k$, $x - 7$

10. Each polynomial has a factor of $x - 3$. What is the value of k in each case?

a) $kx^3 - 10x^2 + 2x + 3$

b) $4x^4 - 3x^3 - 2x^2 + kx - 9$