Algebra 2 Name:_____

HW #4: Factor Theorem

1) Check if (x + 5) is a factor of the given polynomial $5x^3 + x^2 - 7x - 5$**.**

2) Evaluate $f(x)$ **at** $x = 1$**, by synthetic division.**

$$f(x) = x^4 - 3x^3 + 5x^2 + 4x - 5$$

3) Check if $(x - 4)$ **is a factor of the given polynomial** $x^3 + x^2 - 16x - 16$**.**

4) Evaluate $f(x)$ **at** $x = -3$**, by synthetic division.**

$$f(x) = x^3 - 3x^2 + 2x + 2$$

5) $x + 3$ **is a factor of the polynomial** $x^3 - 8x^2 - 9x + 72$**. Find the other factors.**

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HW #4: Factor Theorem

6) If $y - 2$ is a factor of the polynomial, then factor the polynomial, $4y^3 - 8y^2 - 9y + 18$ completely.

7) $a + 7$ is a factor of the polynomial $36a^3 + 312a^2 + 445a + 175$. Find the other factors.

8) If $m + 20$ is a factor of the polynomial, then factor $m^3 + 21m^2 - 400$ completely.

9) If the product of three binomials is $x^3 + 3x^2 - 10x - 24$. If one is $x + 2$, what are the other two binomials?