Algebra 2 Plus Name: _____

5-8 Worksheet A | The Rational Zeros Theorem

a. List the possible rational zeros of the polynomial. b. Write the polynomial as a product of linear factors. c. Find the zeros of the polynomial. Write your answers in the spaces provided.

1a. _____ b. _____ c._____

$x^3 + 6x^2 + 11x + 6$

2a. _____ b. _____ c._____

$x^3 - x^2 - 14x + 24$

a. List the possible rational zeros of the polynomial. b. Write the polynomial as a product of linear factors. c. Find the zeros of the polynomial. Write your answers in the spaces provided.

3a. _____ b. _____ c._____

$3x^3 + 8x^2 + 3x - 2$

4a. _____ b. _____ c._____

$x^3 - 19x + 30$

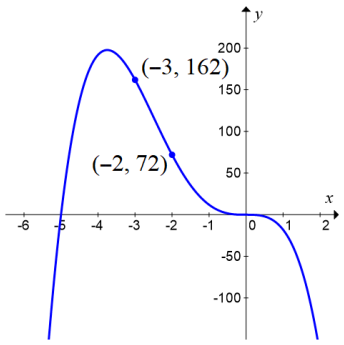
a. List the possible rational zeros of the polynomial. b. Write the polynomial as a product of linear factors. c. Find the zeros of the polynomial. Write your answers in the spaces provided.

5a. _____ b. _____ c._____

$2x^3 + 5x^2 + 4x + 1$

6a. Find the leading coefficient of the polynomial. b. Write the polynomial function in **standard form**. Write your answers in the spaces below.

a. _____ b. _____



Answer Key

1a. $\pm 1, \pm 2, \pm 3, \pm 6$
1b. $(x + 1)(x + 2)(x + 3)$
1c. $-1, -2, -3$

2a. $\pm 1, \pm 2, \pm 3, \pm 4, \pm 6, \pm 8, \pm 12, \pm 24$
2b. $(x - 2)(x - 3)(x + 4)$
2c. $2, 3, -4$

3a. $\pm 1, \pm 2, \pm\frac{1}{3}, \pm\frac{2}{3}$
3b. $(x + 1)(x + 2)(3x - 1)$
3c. $-1, -2, \frac{1}{3}$

4a. $\pm 1, \pm 2, \pm 3, \pm 5, \pm 6, \pm 10, \pm 15, \pm 30$
4b. $(x - 2)(x - 3)(x + 5)$
4c. $2, 3, -5$

5a. $\pm 1, \pm\frac{1}{2}$
5b. $(x + 1)^2(2x + 1)$
5c. $-1, -\frac{1}{2}$

6a. -3
6b. $y = -3x^4 - 15x^3$