Polynomial Functions Assessment

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_\_\_

Write answers in the blanks provided. Show all necessary work.

1. Divide: ) ÷ (𝑥−2). Write the depressed polynomial. [L2]

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Is (𝑥+2) a factor of ? If it is, write (𝑥) as a product of two factors. If it is not state the remainder [L2]

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

a. Degree: \_\_\_\_\_ [L2]

b. Leading Coefficient: \_\_\_\_\_ [L2]

c. Total Number of Solutions: \_\_\_\_\_ [L2]

d. Y-Intercept: \_\_\_\_\_ [L2]

e. List of *Possible* Rational Solutions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [L2]

f. Right End Behavior: \_\_\_\_\_\_\_\_ [L2]

g. Left End Behavior: \_\_\_\_\_\_\_\_ [L2]

h. Use an appropriate method to find the solutions to the polynomial (Show your work). [L3]

h. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. A polynomial equation with rational coefficients has the roots . Find two additional roots. [L2]

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

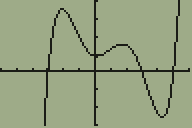
5. Write in standard form a cubic polynomial function with leading coefficient of 1 with zeros of x = −4, x = 2, and x = 5. [L2 or L3]

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. What are the zeros of the function ? Which (if any) repeat? [L3]

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Consider the function .   
[A graph has been provided for you below]

a. What is the total number of solutions? [L2]   
  
 a. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

b. Find ***all*** zeros. [L3]   
 b. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. [*Hint: Standard Form 1st]*

a. Degree: \_\_\_\_\_ [L2]

b. Leading Coefficient: \_\_\_\_\_ [L2]

c. Total Number of Solutions: \_\_\_\_\_ [L2]

d. List of *Possible* Rational Solutions: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ [L2]

e. Use an appropriate method to find the solutions to the polynomial (Show your work). [L3]

e. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. A city council wants to build a road along the town’s river. The river’s twists can be modeled by . When the city is mapped on a grid, they plan to have the road go directly (straight) along the x-axis. How many bridges would the city have to build because of the river and why? Explain your answer. [L4]

10. Determine the value of k so that the (x+3) is a factor of the polynomial. [L4]

÷ (𝑥+3)

11. Consider the terms “factors”, “zeros”, “x-intercepts”. In complete sentences, fully explain the similarities and differences in the three terms in relation to polynomial functions.