

Algebra II
Quiz 2 Review

Name _____

1. For $g(x) = x^3 + x^2 - 4x - 4$, state:
 - a. the end behavior (No GC)
 - b. x-values for which the function is increasing and decreasing (Use GC)
 - c. x-intercepts (Use GC)
 - d. y-intercept (No GC)
 - e. degree (No GC)
 - f. zeros (Use GC)

No graphing calculator or desmos for remaining problems.

2. Perform the following operations.
 - a. $(3x^4 - 2x^2 + 5x - 1) - (4x^3 + 6x^2 - 7x - 9)$
 - b. $(x - 4)^3$

3. Divide using long division. $(3x^3 + 2x^2 - 5x + 7) \div (x^2 + 2x)$

4. Divide using synthetic division. $(x^4 + 2x^3 + 4x - 20) \div (x + 3)$

5. What is the value of k such that $(x^3 + 2x^2 + kx + 6) \div (x + 1)$ has a remainder of 10?

6. Is $(x - 4)$ a factor of $f(x) = 2x^3 - x^2 - 25x - 12$? If it is, write the polynomial in factored form.

7. For $f(x) = -2x^3 - x^2 + 8x + 4$, make a table of values and sketch the polynomial.