

BLIZZARD BAG - DAY 1
Complete this Chapter 5
Review Worksheet.

Algebra 2 Pre – AP
Chapters 5 Review Worksheet

Directions: Complete the following problems on the packet. These packets will serve as a review of the entire year.

Find the remainder R when $f(x)$ is divided by $g(x)$. Use synthetic division. Is g a factor of f ?

1. $f(x) = 8x^3 - 3x^2 + x + 4; g(x) = x - 1$ 2. $f(x) = x^4 - 2x^3 + 15x - 2; g(x) = x + 1$

3. List all the possible rational zeros of $f(x) = 12x^8 - x^7 + 6x^4 - x^3 + x - 3$.

Use the Rational Zeros Theorem to find all the real zeros of each polynomial function.

4. $f(x) = x^3 - 3x^2 - 6x + 8$

5. $f(x) = x^4 - 4x^3 + 9x^2 - 20x + 20$

Solve each equation in the complex number system.

6. $2x^4 + 2x^3 - 11x^2 + x - 6 = 0$

7. $2x^4 + 7x^3 + x^2 - 7x - 3 = 0$

Solve each equation in the complex number system.

8. $x^3 - x^2 - 10x - 8 = 0$

9. $3x^4 + 3x^3 - 17x^2 + x - 6 = 0$

Use the Intermediate Value Theorem for the following questions.

10. How could you determine, using the Intermediate Value Theorem, whether the polynomial in #11 has a zero on the interval given?

11. Does $f(x) = 8x^4 - 4x^3 - 2x - 1$ have a zero on the interval $[-2, -1]$? Justify your answer.

Find a polynomial of *least* degree and leading coefficient of 1 that meets the conditions described. Write the function in *standard form for a polynomial*.

12. Degree: 3; zeros: $4 + i, 6$

13. Degree: 4; zeros: $3 + 4i, 5$

For each polynomial function: (1) describe the end behavior, (2) identify the roots, (3) describe the behavior of the graph at the root, and (4) draw a sketch of the graph.

14. $f(x) = \frac{1}{20}(x - 2)^2(x + 4)^3$

15. $g(x) = -(x - 1)^2(x + 1)(x + 3)$

