

Name: _____

Date: _____

UNIT 2

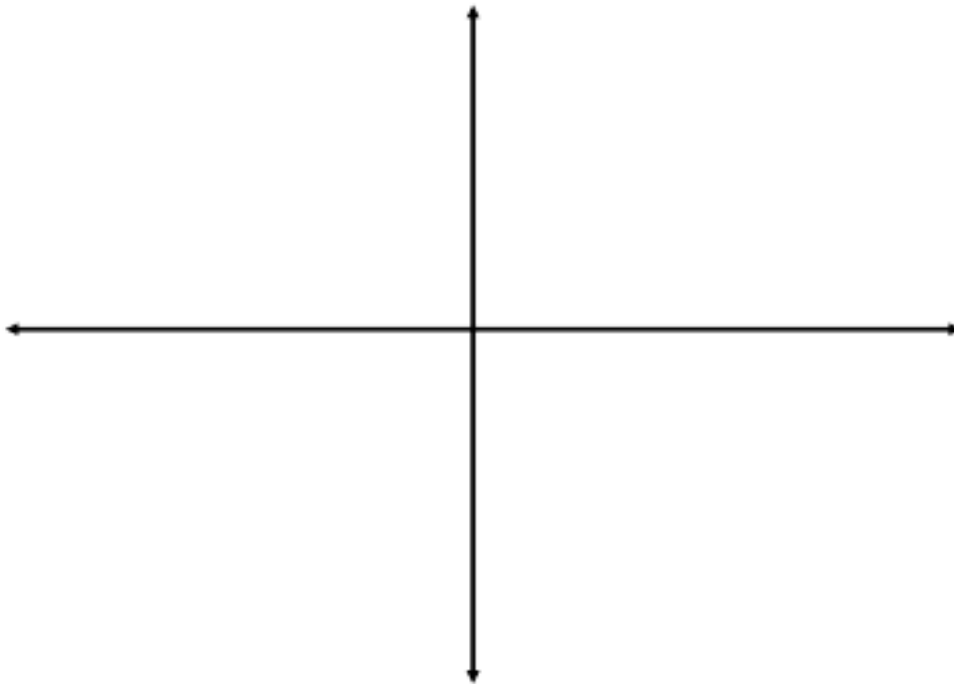
QUIZ REVIEW

PUTTING IT ALL TOGETHER: REVIEW POLYNOMIAL FUNCTIONS

1. Try to answer without a Calculator!

$$\text{Given: } f(x) = -x(x + 5)(x - 1)^2$$

- a) State the degree of the function.
- b) State the roots of the function and their multiplicity.
- c) State the y-intercept of the function.
- d) Describe the end behavior of the function.
- e) Sketch the function on the axes below. Be sure to label all important points.



- f) Is the function even, odd, or neither? Explain your answer *graphically*.
- g) Now justify your answer to part f *algebraically*.

$$f(x) = -x(x + 5)(x - 1)^2$$

2. For the function $0 = x^3 + 3x^2 - 9x - 27$

a) State the degree of the function.

b) State the y-intercept of the function.

c) Describe the end behavior of the function. Explain how you know.

d) Find the roots of the function algebraically and state their multiplicity.

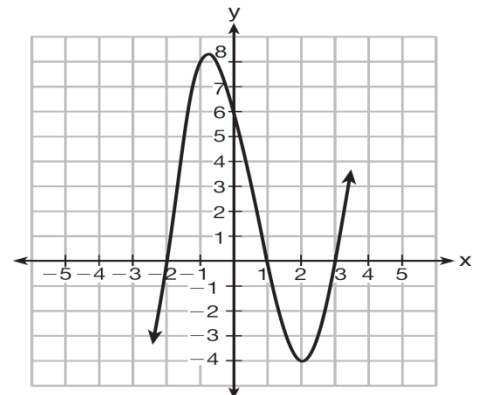
$$0 = x^3 + 3x^2 - 9x - 27$$

3. Determine **algebraically** if the following functions are even, odd, or neither:

a) $f(x) = 4x^2 + 1$

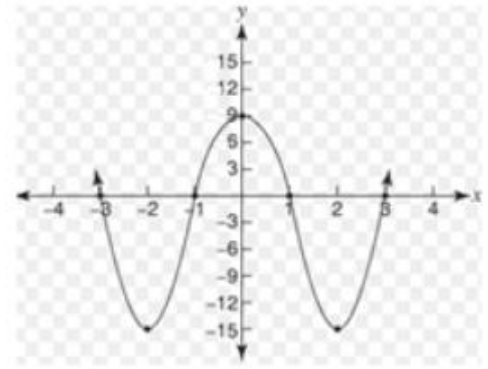
b) $g(x) = 5x^3 + 4x$

4. Is the function graphed even, odd or neither? Explain.



5. Given the graph of the function, answer the following questions:

- What is the y-intercept?
- What are the zeros?
- Is this function even, odd, or neither? Explain.
- Is the leading coefficient positive or negative? Explain.
- Is the degree of the function even or odd? Explain.



6. Find the zeros of the following equation. Use any (or all!) of the 3 different methods: Factor, Completing the Square, or Quadratic Formula

$$2x^2 - 9x + 4 = 0$$

7. The function $j(x) = 2x^3 - 3x^2 - 9x + 10$ has three real zeroes. If one of the zeroes is $x = -2$, determine the remaining zeroes.

8. Factor completely:

a) $x^3 - 64$

b) $27y^3 + 343$