

Precalculus Quiz

Polynomials

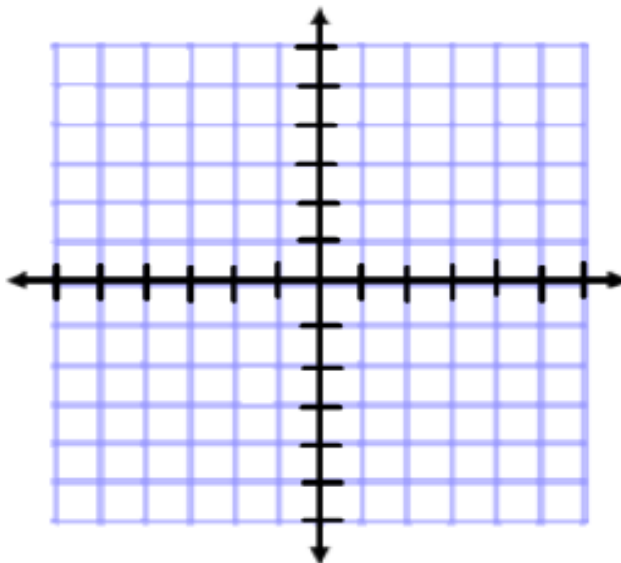
Name _____

Date _____

Provide you answer to each of the following for the polynomials provided.

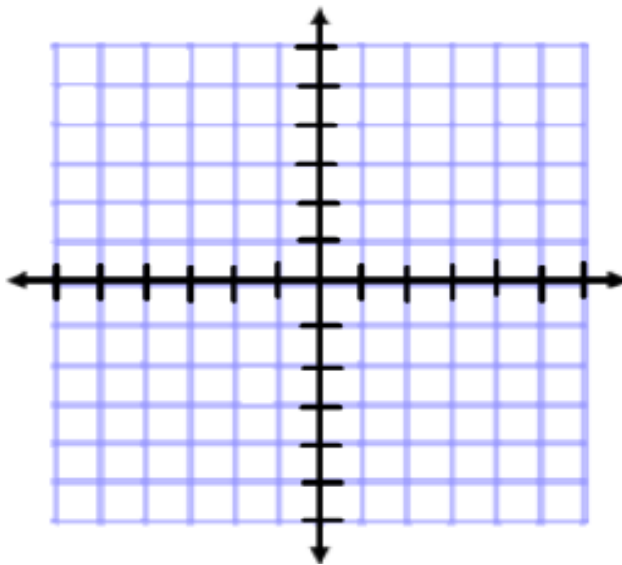
1) $r(x) = 3x^4 - 11x^3 - x^2 + 19x + 6$

- a) Determine the **maximum** number of turning points that the graph of $r(x)$ could have.
- b) What is the **maximum** number imaginary solutions that are possible for $r(x)$?
- c) At most, $r(x)$ could have _____ rational solutions.
- d) Describe the end behavior for $r(x)$. Correct notation must be used.
- e) List all **possible** rational roots for this function.
- f) List any max/min points on the graph of $r(x)$.
- g) Identify the y-intercept of $r(x)$.
- h) Identify all roots for the function.
- i) Describe intervals of increasing and decreasing.
- j) What is prime factorization of $r(x)$?
- k) What is the linear factorization of $r(x)$?
- l) Draw an accurate graph of $r(x)$ on the graph below. Be sure to label the x and y axis.



2) $f(x) = x^3 + 2x^2 + 16x + 32$

- a) Determine the **maximum** number of turning points that the graph of $f(x)$ could have.
- b) What is the **maximum** number imaginary solutions that are possible for $f(x)$?
- c) At most, $f(x)$ could have _____ rational solutions.
- d) Describe the end behavior for $f(x)$. Correct notation must be used.
- e) List all **possible** rational roots for this function.
- f) List any max/min points on the graph of $f(x)$.
- g) Identify the y-intercept of $f(x)$.
- h) Identify all roots for the function.
- i) Describe intervals of increasing and decreasing.
- j) What is prime factorization of $f(x)$?
- k) What is the linear factorization of $f(x)$?
- l) Draw an accurate graph of $f(x)$ on the graph below. Be sure to label the x and y axis.



$$f(x) = x^3 + 2x^2 + 16x + 32$$