

Quiz 1 Review Sheet:

For quiz one you should be able to answer/understand the concepts and questions presented below.

- Being able to find a difference quotient
 - If $f(x) = x^2 + 3x - 1$, then find $\frac{f(x+h)-f(x)}{h}$
 - What does the difference quotient represent? (you should be able to answer this with one word, possibly 3 depending on how you like to describe the change in y over the... oh.. I've said too much ☺)
- Be able to factor the following equations in whichever way make sense to you. Consider options like grouping, factoring out common monomials, recognizing special formulas (i.e. difference of perfect squares... It is not a requirement to memorize these, but becoming familiar with them will only make factoring in the future easier.)
 - $x^2 + 3x - 10$
 - $x^4 + 8x^2 + 16$
 - $x^3 - x^2 - 4x + 4$
- Be able to **quickly** sketch all of the functions from the library of functions worksheet that was handed out in class/is in section 1.4. You should also be able to identify their domains and ranges.
- Be able to identify what a function is. How does X get mapped to Y? Are there multiple outputs for one input?
- If $f(x) = \sqrt{x+1}$ and $g(x) = 2x^2$ be able to find the following. Also be able to find the domain of each.
 - $(f+g)(x)$
 - $\left(\frac{f}{g}\right)(x)$
 - $(f-g)(3)$
- What kind of test must the graph of a function pass in order to be a function? When finding the zeros of a function, what intercepts are you finding?
- Be able to identify local min/max, absolute min/max and where a function is increasing or decreasing. When addressing the min/max pay attention to end points! (are the open or closed...or do they even exist?)
- Are the following equations odd, even, or neither? How do you determine this? What is true about the characteristics of an odd/even graph?
 - $f(x) = x^2 - 5$
 - $h(x) = 3x^3 + x$
 - $g(x) = x^3 + x^2 - 5$
- If $f(x) = x^2 + 3x - 1$
 - Find the average rate of change between $x = 1$ and $x = 3$
 - Find the equation of the secant line (feel free to use slope intercept, or point slope form)
- Be able to identify a linear function from a set of data.

11. Be able to solve equations from section A8
12. Be prepared to answer an application problem similar to something like the NYTimes question or from the Geometry Applications section in A2

**I will provide you with all necessary equations. There are no formulas that you must memorize for this quiz but that doesn't mean you shouldn't study them and practice with them.