MHF 4U – Things I Learned This Semester

Knowledge questions are largely given as multiple-choice questions and involve some of the following concepts.

1. Knowing the degree of polynomial functions and how a function looks based on the degree and end behaviours.
2. Understanding the behaviour of a polynomial function based on the order of its zeros.
3. Understanding the concept of odd and even functions.
4. Being able to describe transformations of polynomial functions with and without a mapping.
5. Understanding how to write a division statement.
6. Understanding how to apply factor or remainder theorem.
7. Understanding the integral and rational zero theorem.
8. Being able to use a graph to solve a polynomial or rational inequality.
9. Knowing how the finite differences are related the leading coefficient.
10. Understanding how to find the asymptotes of reciprocal functions
11. Finding the x-intercepts of various functions.
12. Understanding what causes a slant asymptote.
13. Understanding the definition of logarithms.
14. Applying the laws of logarithms
15. Being able to evaluate logarithms by various methods.

Polynomial Functions

2. I can explain the difference between average and instantaneous rate of change. _____
3. I can determine whether a function is odd or even by using algebraic skills. _____
4. I can find the equation of a polynomial function if given a graph, by using the zeros and one other point on the function. _____
5. I can state the mapping for a transformation and use it to transform points on function, to find the new transformed function. _____

Polynomial Equations

2. I can write a division statement for a polynomial division question, and expand it to find the original polynomial. _____
3. If I know the zeros of a polynomial function I can use remainder theorem to find the function. _____
4. I can find unknown values in a polynomial function, if I'm given the remainders when the polynomial is divided by each of two binomials. _____
5. I can find the zeros of a polynomial function and use them to roughly sketch the graph to solve an inequality problem. I can find the average and instantaneous rate of change for the polynomial function. _____

Rational Functions

2. I can solve a rational inequality
3. I can graph a rational function by simplifying and looking at its key features.

Trigonometry

2. I can find the exact value of an angle, by turning it into the sum/difference of two special angles and applying the compound angle formula.
3. If I know the trig ratio of two separate angles, I can use right triangles and CAST rule to find the exact value of a compound angle.
4. I can solve a trigonometric equation that is quadratic in nature – even if I have to first use an identity to make sure the whole equation is in the same trig ratio.
5. I can graph a transformed sinusoidal function by examining the midline, amplitude, period, and phase shift, and I can state the domain and range.

Logs and Exponentials

2. I can solve log and exponential equations solving a number of techniques.
3. I can solve applications dealing with decibels and sound levels.
4. I can solve applications of exponential growth and decay

Thinking

There are 4 thinking questions. For each question you have a choice between two parts that I believe are of equal difficulty. **Do only one part for each question.**

1. I can solve trig identities.
2. I can use factor and remainder theorem to find unknown values in polynomials.
3. I can solve application questions involving objects moving according to polynomial functions, and finding instantaneous rates of change. I can also solve open-top box questions.
4. I can solve exponential equations by making a substitution and solving as a quadratic. I can explore the idea of inverse functions