Test 3 Review Sheet

This sheet contains the material from each section that will be covered in test 3.
This list is by no means exhaustive.

4.1 Exponential Functions

- Definition of exponential functions and condition on base for increasing and decreasing.
- Intercepts and asymptotes of exponential graphs and its transformations. $y = Ce^{k(t-a)}$, C, k, a constants.
- Compound interest with discrete compound and continuous compound. The form of the models $A = P(1+\frac{r}{n})^{nt}$ and $A = Pe^{rt}$ will be given in the test but the actual variables will not.

4.2 Logarithmic Functions

- Definitions. The equivalence of $\log_a b = c \iff a^c = b$.
- Intercepts and asymptotes of logarithmic graphs and its transformations. $y = C\log_a(b(x-k))$, a, b, C, k constants.

4.3 Laws of Logarithms

- Know the main 3 laws and logarithms and know the common mistakes, AVOID the common mistakes!!
- Expanding and combining algebraic expressions using log laws.
- Change of base formula. Your calculator can only take logs to base 10 and e, everything else needs to have the base changed for you to use on the calculator.

4.4 Exponential and Logarithmic Equations

- Using exp and log laws to rearrange algebraic equations.
- Some of these equations could be a quadratic in disguise. If you divide by some function, make sure that function is NEVER zero.
- Know how to solve equations graphically. You may want to graph LHS and RHS of an equation and find the intersections.

4.5 Modelling with Exp and Log

- Exponential growth model and the variables inside. Understand that the relative rate is not the actual rate.
- Radioactive decay model, half life and how it is related to relative decreasing rate.
- Newton's Law of Cooling. This is just like the decay model but with a vertical shift.
- Logarithmic scales WILL NOT be on the test, but you should read it to prepare for the final common exam.

6.1 Angles

- Degree and Radian measure and the conversion between them. Standard position.
- Coterminal angles and its general form, least positive coterminal.
- Arc length and sector area formulae, remember to use RADIANS!
- Angular speed and linear speeds. Know how they are related. Angular speed is always measure with radians. It is important to note the units.

6.2 Trig Functions on Right Triangles

- Definition of trig functions and their reciprocals.
- Special triangles and their exact values.
- Know how to solve a triangle given enough information, may need to use the inverse trig functions.
- Angle of elevation and depression.

6.3 Trig Functions of Angles

- Generalised trig functions in standard position. Remember trig values could now be negative!
- Use of CAST diagram, reference angle and special triangles to evaluate exact trig values on "nice" angles. (see algorithm in class notes)
- Identities: reciprocal, quotient and Pythagorean. Know how to use them to evaluate trig values given enough information.