Grade 10 Math CST **Jan./Feb. 2018**
Topics on the Mid-Year Exam

TOPIC	Y	NY
ISOLATING VARIABLES		
• How to **ISOLATE** a **VARIABLE** (get the 'x' or the 'y' by itself)		
BUILDING RULES FOR LINEAR FUNCTIONS		
• How to identify **INDEPENDENT** and **DEPENDENT** variables in a **WORD PROBLEM**		
• How to express an equation in '**Y = AX + B'** form starting from a **WORD PROBLEM** ○ **Given two sets of coordinates (x_1,y_1) and (x_2,y_2)** ○ **Given a rate (a) and an initial value (b)** ○ **Given a rate (a) and a set of coordinates (x,y)** ○ **Given 3 different pieces of information (ex. 3 cats + 2 dogs = 50$)**		
• How to identify the **INITIAL VALUE** ('**b**') on a **GRAPH** (Y-intercept)		
• How to identify an **X-INTERCEPT** on a graph (and add the '0' to the y coordinate)		
• How to find the **SLOPE** of a line ('a = $\frac{y_2-y_1}{x_2-x_1}$')		
• How to find the **EQUATION** of a line given the **SLOPE** and a **POINT** on the line		
• How to find the **EQUATION** of a line given **TWO POINTS** on the line		
• How to find an **X-INTERCEPT**, given an **EQUATION**		
• How to find a **Y-INTERCEPT**, given an **EQUATION**.		
PARALLEL AND PERPENDICULAR LINES		
• How to find the **EQUATION** of a line **PARALLEL** to a given line ○ **Same slope ('b' can be the same or different)**		
• How to find the **EQUATION** of a line **PERPENDICULAR** to a given line ○ **The slope of one line is the N.R.S. of the other line**		
SYSTEMS OF EQUATIONS		
• How to **TRANSLATE** a **STORY** into a **SYSTEM OF EQUATIONS** **(**make the equations**)**		
• How to determine the **NUMBER OF SOLUTIONS** in a **SYSTEM** • (parallel (**0**), different slopes (**1**), parallel and coincident (same line, ∞)		
• How to **SOLVE** a **SYSTEM OF EQUATIONS** **(find both 'x' and 'y')**		

FUNCTIONS		
• **ZERO** degree (constant) e.g. ' ***y =0x + 5 ' or just y = 5***		
• **FIRST** degree (direct, and partial with positive and negative slopes) ***y = ax + b***		
• **2nd** DEGREE (quadratic) function 'y = ax^2 ' **- Working backward to find 'a,' given x and y – (plug it in to find 'a')** **- Working backward to find 'x,' given a and y**		
• **EXPONENTIAL FUNCTIONS** (growth and decay) y = a^x - **Increasing percentages c = (1 + %)** **- Decreasing percentages c = (1 - %)** **- Working backward to find 'a' by plugging in the numbers and isolating 'a'** **- Working backward to find 'x' with a table of values**		
• **STEP FUNCTIONS** (*open circle – pass through, closed circle – use the value*) **- Applying step functions to word problems** **- Correctly interpreting a step-function graph**		
• **PERIODIC** function (*find the and identify how much time is left*) - identifying the period of a repeating pattern function (time for a full cycle) (period → full time → # full cycles → time full cycles → time left → read it off) - Building a rule from points when 'time left' is not obvious from the graph		
• **PIECEWISE** FUNCTIONS (*different functions at different points along the domain*) - **Using points on a graph to finish incomplete equations** **- Working backward to find the 'x' values, given a particular 'y'**		
STATISTICS		
• How to make and read a **STEM AND LEAF PLOT**		
• How to calculate **MEAN , MEDIAN, and MODE**		
• How to calculate **MEAN DEVIATION** (no negatives!)		
• How to calculate **PERCENTILE RANK** (always round up)		
• How to **find a SCORE** of place **GIVEN PERCENTILE** (round down, then find the score)		