Fall 2016

Review Sheet for Unit One Exam
Modeling Algebra

The best way to prepare for this exam is to do lots of problems. Your MyLabsPlus site has review problems and a practice exam and you can work as many times as you like. You should work until you can do all problems easily. The practice exam has a few more problems than the real thing but is comparable. Review your workbook pages as well.

Be sure to review the pages we completed in the workbook for this unit.

Here are the main topics in each section of this unit:

Integer Exponents and Operations with Polynomials: Most of this material should be review for you. Our workbook has many useful resources. I would review all the worked examples and try to complete the exercises found in on the first few pages of the handbook.

- Be able to simplify expressions with integer exponents
- Know basic operation with polynomials
    - How to find the degree of the polynomial
    - Leading coefficient
    - Addition and subtraction
    - Multiplication

Section 1.1 Functions: try these pp. 19 - 25; #5, 6, 7, 8, 13, 14, 17, 18, 29, 32, 43, 45, 48, 60, 61

- Determine if a table of values represents a function, be able to explain why or why not
- Determine if a graph represents a function, be able to explain why or why not
- Given a table of values, a graph , or a real-world scenario be able to identify the independent and dependent variable
- Be able to state the domain and range of a function using interval notation
- Know how to interpret functions values given the table, rule, or graph

Section 1.2 Graphs of Functions: try these pp. 37 – 39; #3, 5, 19, 21, 23, 26, 31, 35, 36, 37, 29

- Graph a function on paper and pencil using a table of values
- Find an appropriate viewing window on your calculator given the function rule
- Interpret function values in CONTEXT

Section 1.3: Linear Functions: try these pp. 54 – 58; #3, 7, 16, 27, 31, 35, 37, 38, 39, 53, 56, 59

- Find and interpret slopes and intercepts in CONTEXT
- Write equations of lines from applications and interpret your results
- Be able to write linear models from applications

Section 1.4: Equations of Lines: try these pp. 70 – 74; #7, 9, 11, 21, 33, 37, 39, 41, 49, 54

- Given two points write the equation of the line passing through them

- Given the slope (rate of change) and the vertical (y) intercept of a linear function, write its equation
- Be able to find equations of lines in applications and interpret your answers in CONTEXT

Formulas and Concepts:

- Independent variables are represented on the horizontal axis. Dependent variables are represented on the vertical axis.
- Graphs of data can be non-linear, approximately linear, or linear. We can determine this by looking at the graph, the table of values and/or the function.
- X-intercepts are found when we set y = 0.
- Y-intercepts are found when we set x = 0.
- Slope of a line measures steepness and direction. It is defined as

$$m = \frac{\Delta y}{\Delta x} = \frac{\Delta dependent}{\Delta independent} = \frac{y_2 - y_1}{x_2 - x_1}$$

- Slope-intercept form of a line is $y = mx + b$, where *m* is defined as the slope and *b* is the vertical intercept.
- Any number *a* for which *f*(*a*) = 0 is called the zero of the function.
- You should be able to interpret the slope and intercepts of the function in the context given.

Also Try:

1. Using the following table, determine if *y* is a function of *x*. Is *x* a function of *y*? Explain your reasoning.

x	y
-1	95
0	88
1	81
2	74
3	67

2. Given the function, $D(t) = 5t^2 - t$, find *D (2), D (-1)*

3. Write the equation of the line that passes through the points (3,4) and (1,-2).

4. An appliance repairman charges $50 for a service call and $15 for each hour spent on the job. Write a model for the money the repairman makes as a function of time spent on the job.

5. The area of lawn remaining, (in square yards), after *x* number of hours spent mowing is written as $A(x) = 1500 - 300x$.

a) Name the slope and interpret its meaning in context.

b) Name the vertical intercept and interpret its meaning in context.