Review Guidelines for Chapter 2 Linear Equations and Functions 32 pts.

1. In each section, answer the questions in complete sentences and solve each problem.
2. Neatly and clearly show all the major steps in leading to the solution.
3. Be prepared to present any of these points to the class if called on to do so.
4. Do all work and writing on a separate sheet of graph paper.
5. **Graphs should be legible and done with a straight edge, and clearly labeled with the scale and appropriate units if applicable**

2.1 Functions and Their Graphs

(1) **What is a function? (answer with words and an illustration)**
(2) **What is a linear function?**

Graph the relation. Then tell whether the relation is a function.

(3)

x	-2	-1	0	1	2
y	0	5	6	0	3

(4)

x	-2	-1	0	1	2	-2
y	4	-1	3	2	1	-8

Graph the functions: (5) $y = 2$ (6) $y = -2x$

2.2 Slope and Rate of Change

Copy and complete the following statements:

(7) Two lines are parallel if their slopes are _____.
Two lines are perpendicular if their slopes are _____.

Tell whether the lines are parallel, perpendicular, or neither.

(8) Line 1: through (3,2) and (1,5)
Line 2: through (-1,6) and (2,8)

(9) Line 1: through (-3,-1) and (4,-8)
Line 2: through (5,3) and (4,2)

2.3 Quick Graphs of Linear Equations

(10) **Describe the two common forms of linear equations and give an example of each**

Graph the equation.

(11) $y = 4x + 3$ (12) $y = -3x - 2$

Rewrite in standard form, then graph.

(13) $7x - 2y + 6 = 0$ (14) $2x - y = 2$ (15) $x + 6y - 3 = 0$

(16) $3x - 5y + 15 = 0$

2.4 Writing Equations of Lines

Write an equation of the line that passes through the given point and has the given slope.

(17) $(-4,3)$, $m=5$ (18) $(2,1)$, $m=-2$

Write an equation of the line that passes through the given points.

(19) $(-1,3)$, $(1,-1)$ (20) $(-2,1)$, $(2,4)$

2.5 Correlation and Best Fitting Lines

(21) **Describe the difference between positive and negative correlation**

(22) **Describe what your calculator determines when it does a linear regression on a set of data**

(23) ***Broccoli Consumption***

The table shows the per capita consumption of broccoli, b (in pounds), for the years 1980 through 1989.

Year, t	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Pounds, b	1.6	1.8	2.2	2.3	2.7	2.9	3.5	3.6	4.2	4.5

(a) Draw a scatter plot of the data. Let t represent the number of years since 1980.

(b) Do a linear regression on your calculator to find the best fitting line through the data

(c) Predict the per capita consumption of broccoli in 2002.

2.6 Linear Inequalities in Two Variables

Graph:

(24) $x < -\frac{1}{2}$ (25) $y \geq -5$ (26) $y \geq \frac{1}{2}x + 5$ (27) $-5x + 5y > 1$

2.7 Piecewise Functions

Graph the function:

(28) $f(x) = \begin{cases} 3, \text{if } x \leq 4 \\ -1, \text{if } x > 4 \end{cases}$ (29) $f(x) = \begin{cases} x+3, \text{if } x \leq 0 \\ 2x, \text{if } x > 0 \end{cases}$

2.8 Absolute Value Functions

Graph the function:

(30) $y = |x+2| - 3$ (31) $y = -\frac{1}{2}|x-1| + 2$