Examination IV
Algebra 1

Please produce your answers on your own paper, detailing your solutions and documenting your work. Include the problem number and your information (Big 4) on each sheet/email. You may use any notes or assignments as reference on this examination.

1. Somewhere in this test, produce a PIC and a GDB that seems appropriate as part of your solution. Email me these files as attachments, explaining why you value them as part of your solution.

2. For the following Absolute Value functions, identify and report the following:
   a) Maximum or Minimum point;
   b) X-Intercept(s);
   c) Y-Intercept; and
   d) Slope of the left and right sides.

$$\textbf{\textit{I}.)} \quad \left|-1x+5\right|-\frac{1}{2}$$

$$\textbf{\textit{II}.)} \quad \left|x\right|-3$$

$$\textbf{\textit{III}.)} \quad 1*\left|x-3\right|-4$$

3. Given the following information, give the Absolute Value expression, and a graph of the full function:
   a) Minimum point = **(3,-2)**
   b) X-Intercepts = **2 and 4**
   c) Y-Intercept = **4**
   d) Slope of the left and right sides: **Slope Right = 2, Slope Left = -2**

4. Collect the Ball Bounce information using the RANGER program and CBR with the provided ball. Answer the following questions (Detail how you got your answers.):
   a) Convert the values for height to centimeters.
   b) Give the initial height that you dropped the ball from, and the name of the ball.
   c) What is the Average Ratio of the Bounces as a percent?
   d) Select one of the Bounces and identify the Quadratic that fits it best.
   e) Express your level of belief that this is the best fit.
   f) Give the Quadratic from part d in the Ax^2+Bx+C form.
   g) Give the Quadratic from part d in the $A(x-H)^2+K$ form.

5. Using the Squares, Strips and Singles as seen with the Algebra Tiles, Make a Rectangle using the indicated numbers and then write the algebraic statement showing the Product (polynomial) and the factors.
   a) 4, 7, -2 b) 9, -30, 25 c) 3, 24, 48

6. Complete the table below (on your own paper).

(X+a) (X+b)	**X^2+aX+bX+ab**	**X^2+(a+b)X+ab**
(X+9)(X+1)	#	#
#	X^2-5X-6X+30	#
#	#	X^2-X-12

7. Use at least 4 of the 8 ways in the solution of these problems. Document the results and state the method used.

$$\boldsymbol{A)} \quad \boldsymbol{X^2 - 11X + 24 = 0}$$

$$\boldsymbol{B)} \quad \boldsymbol{2X^2 + 3X = 5}$$

$$\boldsymbol{C)} \quad \boldsymbol{-18 = -18X - 8X^2}$$

$$\boldsymbol{D)} \quad \boldsymbol{4X^2 = 7X + 2}$$

$$\boldsymbol{E)} \quad \boldsymbol{3X^2 - 15 = -21}$$

8. Do the following multiplication on your own paper, and give the algebraic expression that goes with the answer.

*	A	B	C
A			
B			
C			

9. What is “Portfolio Purging” and how and why does one do it?

10. Compare and Contrast Rectangles and Squares.