Algebraic Connections
Examination II

DO NOT WRITE ON THIS EXAM!

Use your own paper, and/or the computer, to report the answers to the questions. Make sure you use the problem numbers, show all work, document your solutions, and include the answer to the question! Name, Date, Period, and What it is.

1. During this examination, use at least two of the following technologies, in an effective attempt to solve one or more of the questions below. Use GroupWise, Graph Link, TI-Interactive!, and/or Graphical Analysis. Report the following information with your use: a) what problem you were solving, b) which of the technologies was used, and c) why you think this was an effective use of the technology to solve the problem(s).

2. Using the CBL with the NEWTON program, collect a set of data from the following steps:
   a) Place the temperature probe in the air, and put the CBL in Multimeter mode, to collect the temperature of the air. Report this temperature.
   b) Take the CBL out of Multimeter mode and place the temperature probe in your hand for at least 120 seconds. With the probe still held tightly in your hand, run the NEWTON program and when prompted to start, release the probe into the air. Give me the data.
   c) Provide a Scatter Plot of the data with a WINDOW.

3. Using the AlgConn Syllabus, determine what Ookyer's would need to make on the missing Portfolio items to get a "C" for the Semester if their 2nd Nine Weeks Progress Report was 56% and they made a score on the final of 77%.

Item	1st 9 weeks	2nd 9 weeks
OverArching Process	2	4
7 Parts of AlgConn	1	3
Testing	2	*?*
Technology	1	2
Growth	0	1
Free/Web	4	*?*
Journal	3	4

4. Using the data in the list that represents Temperature (in degrees Celsius) from question 2, identify the following values:

n	mean	median	mode	average	maximum	minimum	range

5. Use the algorithm from the book on page 277 to play the Guessing Game based on the following information.
   The game is from 1 to N.   Your number is M.
   Identify N and M by the following steps:
   a) Seed the Random Number with your Birth Date in the form of MM/DD/YYYY. Report this date.
   b) Use randInt(1,100) to get N. Report this value.
   c) Use randInt(1,N) to get M. Report this number.
   d) Play the game, based on this information and report your guess, and the number of guesses.

6. Make a Histogram using the data below. The data gives the normal average January minimum temperature in degrees Fahrenheit with the latitude and longitude of 56 U.S. cities. (For each year from 1931 to 1960, the daily minimum temperatures in January were added together and divided by 31. Then, the averages for each year were averaged over the 30 years.).

City	JanTemp	Lat	Long
Mobile, AL	44	31.2	88.5
Montgomery, AL	38	32.9	86.8
Phoenix, AZ	35	33.6	112.5
Little Rock, AR	31	35.4	92.8
Los Angeles, CA	47	34.3	118.7
San Francisco, CA	42	38.4	123.0
Denver, CO	15	40.7	105.3
New Haven, CT	22	41.7	73.4
Wilmington, DE	26	40.5	76.3
Washington, DC	30	39.7	77.5
Jacksonville, FL	45	31.0	82.3
Key West, FL	65	25.0	82.0
Miami, FL	58	26.3	80.7
Atlanta, GA	37	33.9	85.0
Boise, ID	22	43.7	117.1
Chicago, IL	19	42.3	88.0
Indianapolis, IN	21	39.8	86.9
Des Moines, IA	11	41.8	93.6
Wichita, KS	22	38.1	97.6
Louisville, KY	27	39.0	86.5
New Orleans, LA	45	30.8	90.2
Portland, ME	12	44.2	70.5
Baltimore, MD	25	39.7	77.3
Boston, MA	23	42.7	71.4
Detroit, MI	21	43.1	83.9
Minneapolis, MN	2	45.9	93.9
St. Louis, MO	24	39.3	90.5
Helena, MT	8	47.1	112.4
Omaha, NE	13	41.9	96.1
Concord, NH	11	43.5	71.9
Atlantic City, NJ	27	39.8	75.3
Albuquerque, NM	24	35.1	106.7
Albany, NY	14	42.6	73.7
New York, NY	27	40.8	74.6
Charlotte, NC	34	35.9	81.5
Raleigh, NC	31	36.4	78.9
Bismarck, ND	0	47.1	101.0
Cincinnati, OH	26	39.2	85.0
Cleveland, OH	21	42.3	82.5
Oklahoma City, OK	28	35.9	97.5
Portland, OR	33	45.6	123.2
Harrisburg, PA	24	40.9	77.8
Philadelphia, PA	24	40.9	75.5
Charleston, SC	38	33.3	80.8
Nashville, TN	31	36.7	87.6
Amarillo, TX	24	35.6	101.9
Galveston, TX	49	29.4	95.5
Houston, TX	44	30.1	95.9
Salt Lake City, UT	18	41.1	112.3
Burlington, VT	7	45.0	73.9
Norfolk, VA	32	37.0	76.6
Seattle, WA	33	48.1	122.5
Spokane, WA	19	48.1	117.9
Madison, WI	9	43.4	90.2
Milwaukee, WI	13	43.3	88.1
Cheyenne, WY	14	41.2	104.9

7. Find the following:
a) The slope of the line that passes through the points (-21 , 46); (-6 , 21); and (18 , -19).
b) The equation of the line that contains the point (3 , -4.5) and has a slope of 17.
c) Give the slope and the y-intercept for the line $3y + 6x = 4$ (2 - 14)
8. Identify the Models shown below.
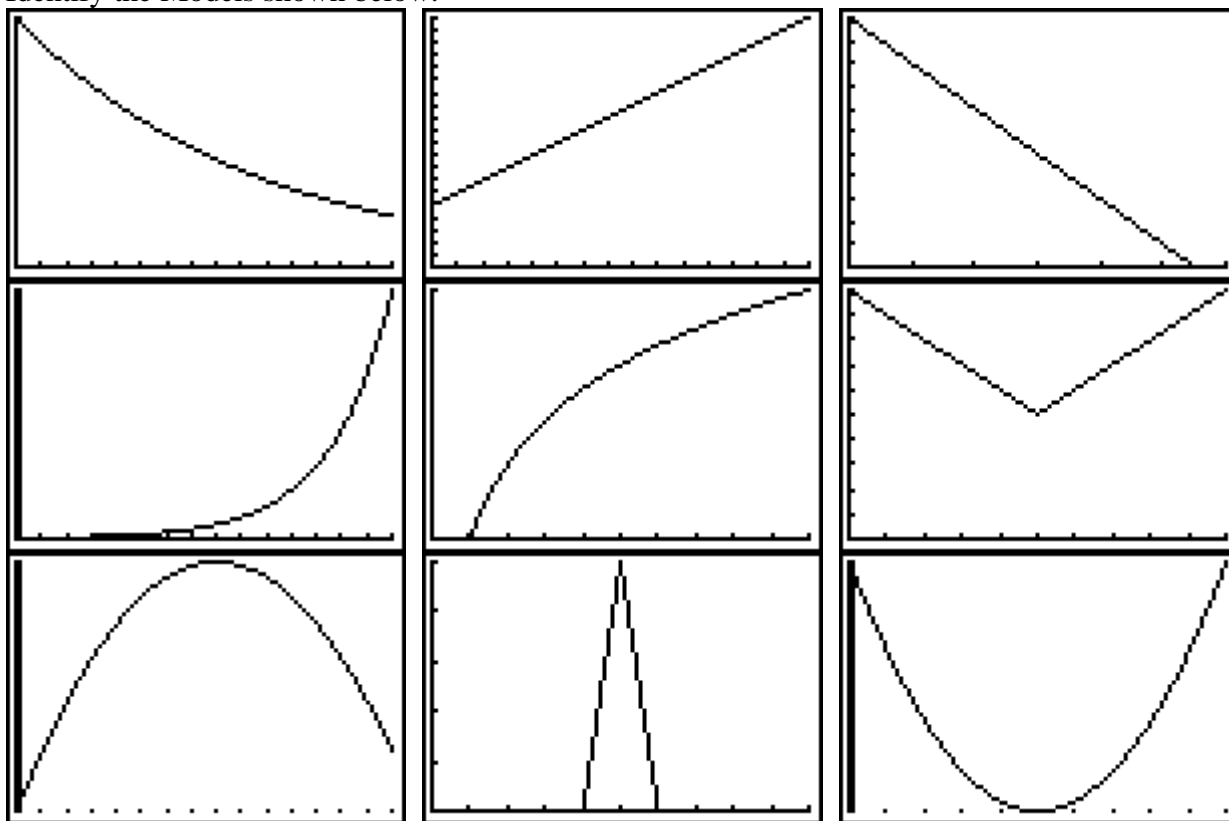
9. Using the data from question 2, answer the following. The X-values are time in seconds.
a) Determine the best Model for the graph and name it.
b) Give the best fit Bubble Baby equation and Graph.
c) Use your equation to predict the temperature after 0.77 seconds, 55 seconds, and 0.7 seconds before the start of the experiment.
d) When would the temperature be 27 degrees Celsius, according to your model?
e) Based on the results above, how confident are you that your model "fits" the event?
10. Identify two points on the line below, and make a right triangle to calculate the slope of the line. Then use another method to verify this slope. Finally give the equation of the line.