Supply and Demand: Applications   NAME _____

You will need graph paper to complete this activity sheet.

Part I: Burgerama Cartoon Dolls

Joan King is marketing director for the BurgerRama restaurant chain. BurgerRama has decided to have a cartoon-character doll made to sell at a premium price at participating BurgerRama locations. The company can choose from several different versions of the doll that sell at different prices. King's problem is to decide which selling price will best suit the needs of BurgerRama's customers and store managers. King has data from previous similar promotions to help her make a decision.

SELLING PRICE OF EACH DOLL	NUMBER SUPPLIED PER WEEK PER STORE	NUMBER REQUESTED PER WEEK PER STORE
$1.00	35	530
$2.00	130	400
$4.00	320	140

1. Use the data from the table above to plot points representing selling price and supply price on a graph. (Selling Price of Each Doll should appear on the *x*-axis, and Number of Dolls Per Week per Store should appear on the *y*-axis.) Draw the line through the data points, and write the word "Supply" on this line.

2. Plot points representing selling price and number requested (demand) on the same graph. Draw the line through these points. Write the word "Demand" on this line.

3. Use your graph to answer the following questions.

    a. If King sets the price at $2.50 per doll, how many disappointed customers will each store have during the week?

    b. If King sets the price at $3.80 per doll, how many unsold dolls will remain at each store at the end of a week?

    c. According to this graph, if the company could give the dolls away, how many would each store need per week?

d. According to this graph, what price would make the doll supply so tight that the average number available to each store would be zero?

e. Estimate the price where supply and demand will be in equilibrium.

4. Answering the following questions using equations:

a. Use two of the points given to find the equation for supply (S) as a function of price (P).

b. Use two of the points given to find the equation for demand (D) as a function of price (P).

c. Solve the system of supply-and-demand equations to find the price in exact equilibrium. How does this price compare with your answer in question **4e** above?

Part II: Video Games

The data provided in the table below show the supply and demand for video games at a toy warehouse.

PRICE	SUPPLY	DEMAND
$20	150	500
$30	250	400
$50	250	400

1. Find the supply equation.

2. Find the demand equation.

3. Find the price in equilibrium.

Part III: Silver Dollars

Yousef likes to buy and sell coins at the flea market on weekends. He is especially interested in Susan B. Anthony silver dollars. By his own trial-and-error experiences and by information gained from other traders, Yousef has found the following data:.

SELLING PRICE	NUMBER IN SUPPLY	NUMBER IN DEMAND
$1.40	10	90
$2.00	19	50
$3.00	42	25
$4.20	94	20

1. On graph paper, graph the price-supply points.

2. On the same graph, graph the price-demand points.

3. Use the graph to estimate the price in equilibrium.

4. Sketch a line that comes close to containing the price-supply points.

5. Sketch a line that comes close to containing the price-demand points.

6. What are the coordinates of the point where these two lines intersect? How does this answer compare with your answer in question 3?

Activities adapted from the October, 1991 edition of *Mathematics Teacher*