

# 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 Burgerama restaurant chain. Burgerama has decided to have a cartoon-character doll made to sell at a premium price at participating Burgerama 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 Burgerama'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.
4. Suppose King sets the price at \$2.50 per doll.
  - a. How many dolls will be in demand? \_\_\_\_\_
  - b. How many dolls will be in the supply? \_\_\_\_\_
  - c. How many disappointed customers will each store have? \_\_\_\_\_
5. Suppose King sets the price at \$3.80 per doll.
  - a. How many dolls will be in demand? \_\_\_\_\_
  - b. How many dolls will be in the supply? \_\_\_\_\_
  - c. How many unsold dolls will remain at each store at the end of the week? \_\_\_\_\_

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

\_\_\_\_\_

7. According to this graph, what price would make the doll demand so high that the average number available to each store would be zero?

\_\_\_\_\_

8. Estimate the price where supply and demand will be equal. \_\_\_\_\_

9. a. Write the coordinates of two points on the supply line.

(     ,     ) and (     ,     )     Label the points  $(X_1, Y_1)$  and  $(X_2, Y_2)$

Find the slope of the line using the slope formula:  $\frac{Y_2 - Y_1}{X_2 - X_1}$

b. Slope (m) = \_\_\_\_\_

c. Find the y-intercept of the supply line: b = \_\_\_\_\_

Write the equation for the supply line in the form  $y = mx + b$

d. Equation for supply line: \_\_\_\_\_

10. a. Write the coordinates of two points on the demand line.

(     ,     ) and (     ,     )     Label the points  $(X_1, Y_1)$  and  $(X_2, Y_2)$

Find the slope of the line using the slope formula:  $\frac{Y_2 - Y_1}{X_2 - X_1}$

b. Slope (m) = \_\_\_\_\_

c. Find the y-intercept of the demand line: b = \_\_\_\_\_

Write the equation for the supply line in the form  $y = mx + b$

d. Equation for demand line: \_\_\_\_\_

11. Solve the system of supply-and-demand equations to find the price in exact equilibrium. Show your work or explain how you got your answer.

## 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	450	200

1. Graph the points and draw supply and demand lines.

2. a. Write the coordinates of two points on the supply line.

(     ,     ) and (     ,     )     Label the points  $(X_1, Y_1)$  and  $(X_2, Y_2)$

Find the slope of the line using the slope formula:  $\frac{Y_2 - Y_1}{X_2 - X_1}$

b. Slope (m) = \_\_\_\_\_     c. Find the y-intercept of the supply line: b = \_\_\_\_\_

Write the equation for the supply line in the form  $y = mx + b$

d. Equation for supply line: \_\_\_\_\_

3. a. Write the coordinates of two points on the demand line.

(     ,     ) and (     ,     )     Label the points  $(X_1, Y_1)$  and  $(X_2, Y_2)$

Find the slope of the line using the slope formula:  $\frac{Y_2 - Y_1}{X_2 - X_1}$

b. Slope (m) = \_\_\_\_\_     c. Find the y-intercept of the demand line: b = \_\_\_\_\_

Write the equation for the supply line in the form  $y = mx + b$

d. Equation for demand line: \_\_\_\_\_

4. Solve the system of supply-and-demand equations to find the price in exact equilibrium. Show your work or explain how you got your answer.