

Name: _____

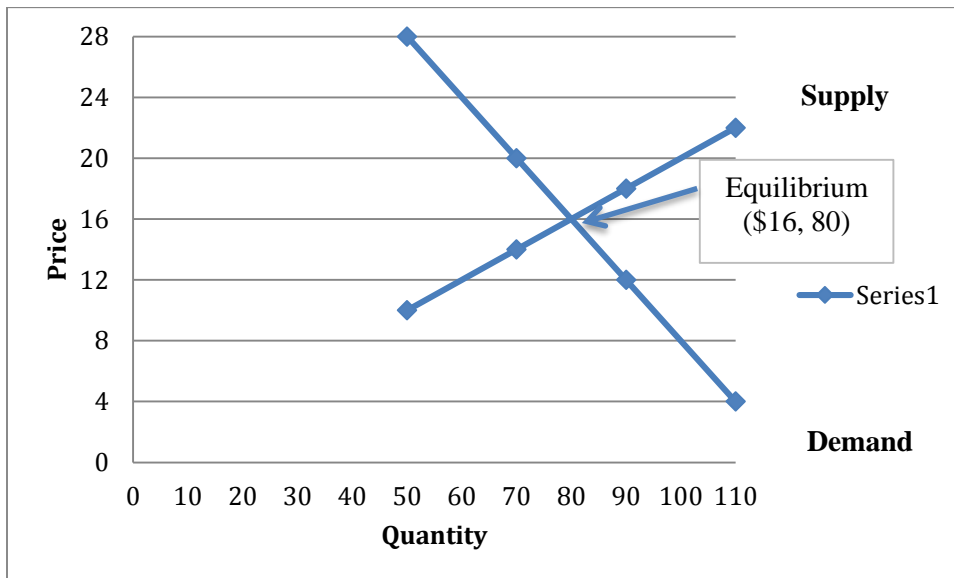
Date: _____

Activity 3 - Answer Key

Use the data below to graph the supply and demand curves, find the equations of the lines, and use the system of equations to confirm the equilibrium point. Be sure to label the graph clearly.

Price (y axis)	Quantity Demanded (x axis)
28	50
20	70
12	90
4	110

Price (y axis)	Quantity Supplied (x axis)
10	50
14	70
18	90
22	110



Name: _____

Date: _____

- a. Find the slope of the demand curve using two points from the demand function table:

$$M = \frac{y_2 - y_1}{x_2 - x_1} \quad M = \frac{12 - 20}{90 - 70} = -\frac{8}{20} = -.4$$

- b. Plug the slope (-.4) and one of the ordered pairs from the demand function table into $y = mx + b$ and solve for b

$$20 = -.4(70) + b \quad 20 = -28 + b \quad b = 48$$

- c. Enter the slope and y intercept into the slope intercept form of the linear equation demand (x) $y = -.4x + 48$

- d. Find the slope of the supply curve using two points from the supply function table:

$$M = \frac{y_2 - y_1}{x_2 - x_1} \quad M = \frac{18 - 14}{90 - 70} = \frac{4}{20} = \frac{1}{5} = .2$$

- e. Plug the slope (.2) and one of the ordered pairs from the supply function table into $y = mx + b$ and solve for b

$$18 = .2(90) + b \quad 18 = 18 + b \quad b = 0$$

- f. Enter the slope and the y intercept into the slope intercept form of the linear equation

$$\text{Supply (x)} \quad y = .2x$$

- g. Set the equations equal to each other and solve for x to obtain the quantity.

$$-.4x + 48 = .2x \quad 48 = .6x \quad x = 80$$

- h. Plug the result $x = 80$ back into either equation to obtain the value for y, which equals the equilibrium price.

$$y = .2x \quad y = .2(80) \quad 16$$

- i. The intersection and equilibrium point is (16 price, 80 quantity)