Name_____ Date_____

Unit 3 **Lesson 8.5**

AIM: Solving word problems involving systems of equations-Day 2

13. Monthly demand for Curious George's is given by the equation $y = 8000 - 400x$, while monthly supply is given by the equation $y = 400x$, where x is the price in dollars. Find the price where the supply equals the demand, the **equilibrium price.**

$Y_1 = Y_2$

$8000 - 400x = 400x$

$+400x \quad +400x$

$\frac{8000}{800} = \frac{800x}{800}$

$10 = x$

Let x = $10

$Y = 400(10)$

$Y = 4{,}000$

4,000 supplies

Equilibrium Price: The supply of an item is equal the quantity demanded.

14. A grocer will supply y pounds of ground beef per day when the retail price is x dollars per pound, where $y = 200x + 60$. Consumer studies show that consumer demand for ground beef is y pounds per day, where $y = -150x + 900$. What is the price at which the supply is equal to the demand, the equilibrium price?

Let x = $ of supply

Let y = $ of demand

$Y_1 = Y_2$

$200x + 60 = -150x + 900$

$+150x \quad +150x$

$350x + 60 = 900$

$-60 \quad -60$

$\frac{350x}{350} = \frac{840}{350}$

$x = 2.4$

$Y = 200(2.4) + 60$

$Y = 540$