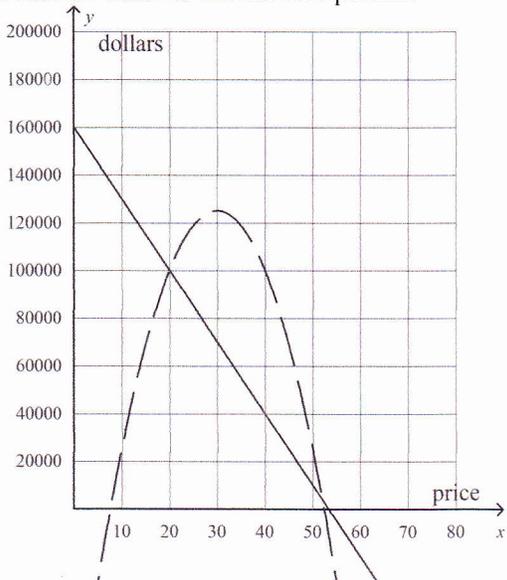


### Financial Algebra Chapter 2 Review

- \_\_\_\_\_ 1. What is it called when the supply has met the demand function?
- \_\_\_\_\_ 2. Barry is an Uber driver and gives his customers a VIP experience. His fixed cost for his car payment is \$245. The labor and supplies needed for each ride is \$2.20. Write the expense equation in terms of quantity,  $q$ .

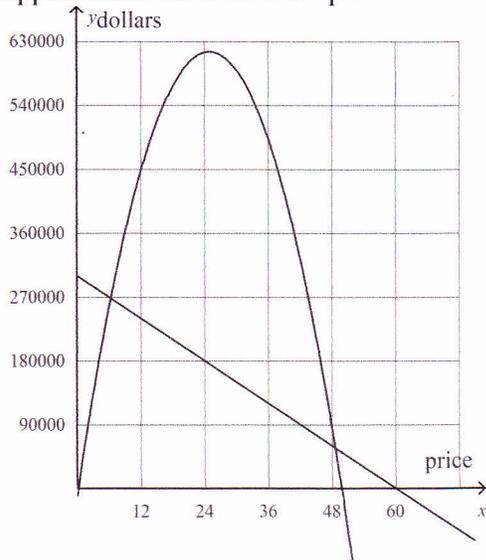
- \_\_\_\_\_ ~~3.~~ The dashed line represents the revenue function, and the dashed line represents the revenue function. Describe each of the labeled points?



SKIP

- \_\_\_\_\_ 4. The Cacti company manufactures and sells succulent gardens. The gardens have an expense equation of  $E = 4.7q + 34,000$ . What is the average cost if there were 1,000 produced?
- \_\_\_\_\_ 5. Give an example for the correlation coefficient for each description?
- |                    |                  |
|--------------------|------------------|
| a. strong positive | c. weak positive |
| b. strong negative | d. weak negative |
- \_\_\_\_\_ 6. Steve and Elizabeth decide to become partners in a children's cooking school. They need \$80,000 for the franchise. They invest in a 3:4 ratio, respectively. How much of the business is invested by Elizabeth?

7. Examine the graph below. At what price is the maximum profit? What dollar amount is those profits? Approximate the breakeven points.



8. Which is the regression equation for a scatterplot with these points rounded to the nearest tenth: (4, 35), (6.5, 92), (2, 10), (5, 50), (6, 85), (10, 110)?

What is the correlation coefficient and interpret it?

9. A company that produces portable camping stoves uses market surveys and linear regression to develop a demand function based on the wholesale price. The demand function is  $q = -968p + 8,900$ . At a price of \$53, how many stoves would be demanded?

10. A demand function for a musical holiday card manufactured by Hallmarked is  $q = -850p + 15,500$ . What is the revenue if the price per card is \$9.50?

11. Maxine works at an amusement park. She recorded the number of ice cream cones sold each day, along with the high temperature in Fahrenheit degrees. Using her data, she wrote a linear regression equation of  $y = 9x - 487$ . If the temperature, or  $x$ , is  $85^{\circ}\text{F}$ , how many ice cream cones could Maxine expect to sell?

**Short Answer**

12. A company makes high end pens. The pens have an expense equation of  $E = 2.18q + \$98,658$ .

What is the fixed cost in the expense function?

What are the variable expenses?

What is the average cost to make 1 pen?

What is the average cost to make 650 pens?

13. Nothing Bundt Cakes sells small bundt cakes and has an expense equation of  $E = 1.25q + 52,600$ . They sell their cakes for \$7 a piece, and their revenue equation is  $R = 7q$ . How many cakes do they have to sell to reach their breakeven point?

14. The Oatmeal makes strategy table top board games. The game "Exploding Kittens" cost \$8 to manufacturer. The fixed cost for the product line is \$25,000. The company has determined their demand function to be  $q = -170p + 10,000$ , where  $p$  is the price for game.

Write the expense *and* revenue functions in terms of price.

15. If the expense equation is  $E = -2,500p + 67,000$  and the revenue equation is  $R = -180p^2 + 5,200p$ .  
What is the profit equation?

What is the maximum profits?

What price will yeild those profits?

16. The demand function for an inexpensive calculator is  $q = -260p + 13,900$ . The fixed expenses are \$125,000 and the variable expenses are \$4.25 per item produced.

a. Express the expense function in terms of quantity,  $q$ .

b. Express the expense function in terms of price,  $p$ .

c. Write the revenue function in terms of the price:

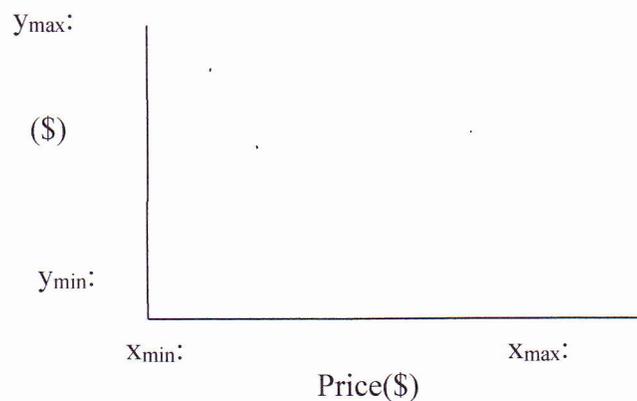
d. What is the price that will yield the maximum revenue?

e. What is revenue at that price?

f. What are the breakeven points?

g. Find the profit equation

h. Graph the expense, revenue, and profit functions on the same graph



i. What is the price the company should set for maximum profits?

j. How much are those profits?