

Name: _____ Date: _____ Period: _____

Chapter 8 Tiered Activities

Show all work!

Standards Addressed: A2. F.BF.B.4, A2. F.IF.A.1, A2. F.IF.B.3, A2. F.IF.B.3, A2.F.BF.B.3, A2. F.IF.A.1, A2.A.APR.C.4, A2.A.REI.A.1, A2.A.REI.A.2, A2.A.REI.D.6

Tier 1 (up to 60 points) Complete #1-2

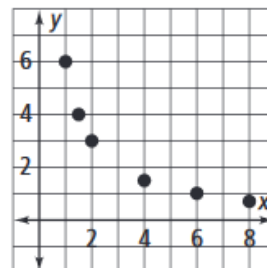
Tier 2 (up to 80 points) Complete #1-3 Do not move up to Tier 2 if you have not completed all of Tier 1.

Tier 3 (up to 100 points) Complete #1-4 Do not move up to Tier 3 if you have not completed all of Tier 1 & Tier 2.

- (30 points) The students in DECA have decided to raise money by selling hats with the school mascot on them. The table below shows how many hats they can expect to sell based on how much they charge per hat in dollars.

Price per hat (p)	5	6	8	9
Hats sold (h)	72	60	45	40

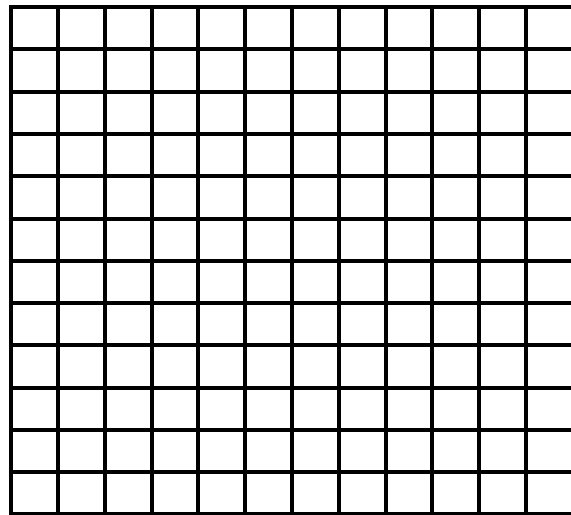
- Describe the relationship between the values in the table as direct variation, inverse variation or neither. Explain.
 - Determine whether there is a constant of variation and give a function that models the data.
 - How many hats can the students expect to sell if DECA decides to charge \$7.50 per hat? Justify your answer.
- (30 points) A student suggests that the graph represents one branch of the inverse variation $y = \frac{3}{x}$. Is the student correct? If not, determine a correct function to represent the graph. Explain



3. (20 points) Suppose you drive an average of 10,000 miles per year. Your gasoline mileage (mi/gal) varies inversely with the number of gallons of gasoline you use each year.

a. Write a function for your gasoline mileage m in terms of the gallons g used.

b. Graph the function as it pertains to this problem. Be sure to label each axis. Include an appropriate scale.



c. If your gasoline mileage for 2017 was 25 mi/gal. How many gallons of gasoline were used?

4. (20 points) Consider the function $y = \frac{x^2+5x+6}{x(x^2+4x+4)}$. Your friend says there is no horizontal asymptote and the vertical asymptote is $x = 0$. Is your friend correct? If not explain your friend's error(s) and determine the correct asymptotes. Justify your answers.