GSE & Honours GSE Algebra II/Advanced Algebra Name: _____
Unit 4: Rational and Radical Relationships
Hank's Hot Dog Stand (Task 6) Date: _____Period: _____

Hank runs a successful hot dog stand right across from the arch at the University of Georgia in downtown Athens. Hank has to order his hot dogs, buns, mustard, relish, and all other condiments in bulk, as well as pay taxes, licensing fees, and other small business expenses. Therefore, Hank has a relatively large "sunk" cost associated with his business. The cost of producing h hot dogs is given by

$$C(h) = 2750 + 0.45h$$

(a) Hank wants to figure out how much to charge a customer for a hot dog if he wishes to make a $0.25 profit on each hot dog sold. Suppose Hank sold 100 hot dogs in an afternoon. What is the cost of making this many hot dogs? How much is this per hot dog? What should Hank charge per hot dog?

(b) Hank wants to analyze what his cost per hot dog would be for different levels of sales. Complete the table below showing his costs at these different levels.

Number of Hot Dogs Sold	**0**	**10**	**100**	**1000**	**10,000**	**100,000**	**1,000,000**
Total Cost							
Cost per Hot Dog							
Hank Should Charge?							

(c) Explain why the average cost per hot dog levels off.

(d) Find an equation for the average cost per hot dog of producing h hot dogs.

(e) Find the domain of the average cost function.

(f) Using the data points from your table above, sketch the average cost function. How does the graph reflect that the average cost levels off?