Name:_____**Date:**_____**Period:**_____

Chapter 1 Tiered Problems   **Show all Work!**

Objectives

- B.N.RN.A.1. Use rational and irrational numbers in calculations and in real world context.
- B.N.Q.A.3 Solve problems involving squares, square roots of numbers, cubes, and cube roots of number
- B.A.SSE.A.1 Use properties of multiplication and division to solve problems containing scientific notation.
- B.F.IF.C.5 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

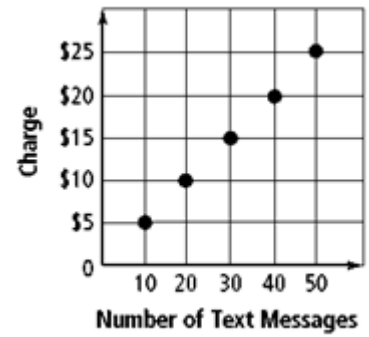**Tier 1 (up to 70 pts) Complete #1-3 Do not move to tier 2 if you have not completed tier 1.**

Tier 2 (up to 85 pts) Complete #1-4 Do not move to tier 3 if you have not completed tier 2.

Tier 3 (up to 100 points) Complete #1-5

1. (30 points) Classify each variable according to the set of numbers that best describes its values. To start, make a list of some numbers that could describe this situation.
   a. the number of students in your class

   b. the area of the circle A found by using the formula $A = \pi r^2$

   c. the elevation e of various land points in the United States measured to the nearest foot

2. (20 points) Suppose you are a cashier at a pet store. A young boy has $20. He wants to buy as many cans of cat food as he can. Brand A is $0.49 per can; however, for every four cans you buy, the fifth one is free. Brand B is $0.39 per can. Which brand should the boy purchase?

3. (20 points) Use the graph at the right to answer the questions.
   a. What is the cost to send 10 text messages?

   b. What is the cost to send 20 text messages?

   c. What is the cost to send one text message?

   d. How much do you owe your parents if you send and
      receive 75 text messages during the month?

Charge vs **Number of Text Messages**

4. (15 points) In a clothing store, a customer asks you whether she has enough money for
   two blouses. She has $30. The first blouse is $17.00 with a 40% discount. The second is
   $20.00 with a 25% discount. Find the total cost of the blouses.

5. (15 points) Shari has a flower garden that contains 24 flowers. Half of the flowers are
   grown from bulbs. Eight flowers are over 3 ft tall. One third of the flowers are her
   favorite color, pink. Only 1 pink flower comes from a bulb and it is over 3 ft tall. Five
   flowers from bulbs are over 3 ft tall.
   a. Think about the problem and determine the universal set.

   b. Create a Venn diagram to illustrate the universal set and the three subsets.

   c. Using roster notation, name the subsets that could be used in this situation and list
      their elements.

   d. Use symbolized notation to describe "how many flowers over 3 ft tall are not from
      bulbs".

   e. Determine exactly how many flowers over 3 ft tall are not from bulbs.