Name _____ Date _____ Class _____

Additional Practice

1. Joan and Jeff are standing 50 meters apart. They take turns walking toward each other. Jeff walks one half the distance between them, then Joan walks one half the distance between them. They take turns, each walking one half the remaining distance between them. Suppose that each walks 4 times (8 rounds) during this exercise.

   a. Make a table showing how far apart Joan and Jeff are after each of the first 8 rounds.

   b. Make a graph of your data from part (a).

   c. Suppose that Joan and Jeff start over and take turns walking 3 feet toward each other. Make a table and a graph for this walking exercise showing how far apart they will be after each of the first 8 rounds.

   d. Compare the tables and graphs for the two situations. Explain the similarities and the differences you see.

Additional Practice *(continued)*

2. A tree farm has begun to harvest a section of trees that was planted a number of years ago.

Supply of Trees

Year	0	1	2	3	4	5	6	7	8
Trees Remaining	10,000	9,502	9,026	8,574	8,145	7,737	7,350	6,892	6,543

a. Suppose the relationship between the year and the trees remaining is exponential. Approximate the decay factor for this relationship.

b. Write an equation for the relationship between time and trees remaining.

c. Evaluate your equation for each of the years shown in the table below to find the approximate number of trees remaining.

Supply of Trees

Year	10	15	20	25	30	35	40
Trees Remaining							

d. The owners of the farm intend to stop harvesting when only 15% of the trees remain. During which year will this occur? Explain your reasoning.

Additional Practice *(continued)*

3. Kai's brother collects fuzzy insects called tribetts. The tribett population decreases by 30% each year.

a. Make a table showing the number of tribetts at the end of the first 5 years for a starting population of 10,000 tribetts.

Tribett Population

Year	0	1	2	3	4	5
Tribetts						

b. Write an equation for the relationship between years and number of tribetts.

c. In what year will there first be fewer than 1,000 tribetts?

4. There are 64 volleyball teams entered in the state competition. In the first round of play, each team plays one other team, so 32 games will be played in the single elimination tournament. The winners from these games play each other in a second round. The winners of the second round play each other in a third round. This continues until there is a final winning team. There are no tie games; games are played into overtime if needed.

a. How many rounds of play are needed before a winner is determined? Explain your reasoning.

b. How many total games are played before a winner is determined? Explain.

c. Suppose an additional round of play is added to the playoffs. How many teams would start in the playoffs? Explain.