Friendly Competition

You and your friend have decided to have a contest to see who can save the most money over the course of one school year. You worked all summer and had some money left over. You put $100 into your bank account before the first day of school. You decided to put $30 in the bank each month during the school year. Your friend did not work over the summer. Her parents agreed to give her $70 to start her account. She decided to put $40 in the bank each month during the school year.

Your task:

1. On a single set of axes, show what you and your friend's graph looked like over the course of the school year.

2. How can you tell from the graph that on the first day of school, you had more money in your account than your friend did?

3. How can you tell from the graph that your friend saved money faster than you did?

4. Write an equation describing each person's savings account from the first day of school after *m* months.

5. Who has the most money at the end of the school year? Justify your answer using your graph and the equations you wrote for Question 4. How do the equations connect with the graph?

6. Is there a time when you and your friend have the same amount of money? If so, when? How much money do you each have at that time? If not, why not?

You and your friend have compare despair! You are also keeping track of how much lined paper you use during the school day. On the first day of school, you have 200 sheets of lined paper. Your friend did some journaling over the summer and starts the school year with 140 sheets of lined paper.   You each use 10 pieces of lined paper during each school day.

1. On a single set of axes, make graphs showing how much paper each student has remaining over the next 14 days, beginning with the first day of school.

2. How do the graphs show that you start with more paper than your friend?

3. How do the graphs show that you and your friend use lined paper at the same rate?

4. For each student, write an equation that describes the amount of lined paper they have remaining after d days.

5. Is there a time when you and your friend have the same amount of lined paper? If so, when?   How many sheets of paper do you each have at that time? If not, why not?