PFS 25-8 1/31/12 _____

Secret Valentines

Matilda has written seven secret valentines. She's addressed the envelopes, and put the valentines inside, but she hasn't sealed the envelopes yet. Brrinnng! She has to leave the room to answer the phone. Her little brother Reginald, who's a snoop, now opens the envelopes and reads the valentines. Here's a sample:

To Cuddly

Roses are red,
Violets are blue,
Mathematics is mysterious and fascinating,
And so are you.

From someone who sits near you in math

Uh-oh, Matilda's coming back! Reginald has no clue which valentine to put back in which envelope, so he just replaces them at random before his sister returns to the room.

[Suggestion: "Start with a simpler problem" is a great strategy for this POW! Try solving the problem for two, three or four valentines first!]

1) What are the chances that each valentine will go to the right person?

2) What's the probability that none will? (This is a hard question!)

3) How likely is it that exactly six will go to the right people? (This should be easier to answer!)

4) How did you attack this problem?

5) How will Matilda attack Reginald when she finds out?

6) Will she find out?

7) How is this POW related to an old French card game?

8) Make a function chart to answer #2 for different numbers of valentines. What happens to this probability as the number of valentines increases? How is this a deranged and irrational problem!? If you work on this problem, ask RAF for a starter page for your chart.

9) Happy Valentine's Day!