Math 4b. Classwork 23.

Ratio and percent. Problems.

Problem:

After returning from a conference, a man's colleagues were asking him about the participants in the event.

– Were there physicists?

– Yes, there were seven times more physicists than anyone else.

– What about chemists?

– Yes, there were seven times fewer chemists than anyone else.

– Were there biologists?

Answer as the man would.

1. All the Christmas ornaments were 30% off at the Christmas store after the holiday. What is the price of the ornament after Christmas, if its initial price was 7 dollars and 50 cents?
   After New Year's Day, all the prices were dropped by another 75%. What is the price of the same ornament now?

2. John has a salary of $75,000 per year. This year, he got a raise of 4%. What is his salary now?

3. If the salary was increased by 20% but then decreased by 20%, is it increased or decreased overall?

4. After the crisis, all prices rose by 25%. By what percentage can fewer goods be purchased with the same salary?

5. John had 10% more Fanta in his bottle than Robert. John drank 11% of his bottle's contents, while Robert drank 2% of his. Who has more Fanta left after that?

6. Three salt solutions with identical weights were mixed together. The concentration of salt in the first solution is 18% (meaning 18% of the total weight is the weight of salt), and the concentration in the second solution is 7%. What is the concentration of the third solution if the concentration of the mixture is 10%?

7. Red, blue, and green balls were brought to the kindergarten. They are in the ratio of 5:7:6, respectively. How many balls of each color are there if a total of 540 balls were brought to the kindergarten?

8. The teacher checks all the homework in 32 minutes. What fraction of the homework will the teacher check in 1 minute? In 8 minutes? In 16 minutes? In 22 minutes?

9. TA check all the homework in 24 minutes. How fast the teacher and TA together will check all the homework?

10. One pipe can fill a pool 1.25 times as fast as a second pipe. When both pipes are opened, they fill the pool in five hours. How long would it take to fill the pool if only the slower pipe is used?