Solving Problems with Signed Numbers

Name:_____   Class: _____   Date: _____

Represent each word problem with a visual (bar model or a number line) and an equation, then solve.

1. Mrs. Williams charted the number of times her students interrupted her or each other every day for 8 days. On the first day, there were 26 interruptions. The goal was to decrease this amount by 3 each day. If students achieved this goal, how many interruptions occurred on the 8th day?

2. A submarine begins its descent from the surface of the water. It dives 20 m each minute for several minutes. If the submarine reaches a depth of 360 m below sea level, how much time did the dive take?

2b. If the submarine dives 20 m each minute for the same amount of time and reaches a depth of 530 m below sea level, from what depth did it begin its descent?

3. The thermometer reads 62°F. A cold front moves into the area and the temperature falls 4°F each hour for four hours and 3° F each hour for another 4 hours. What is the final temperature at the end of the 8 hours?

4. Claudia has a balance of $73 in her bank account. She debits $17 at the movie theater. She debits 6 times that much at the mall.   If she has overspent her account, she will be charged $3 in overdraft fees. What is her balance?

5. You and your family take a road trip out West. You are staying in Phoenix and drive to Flagstaff for dinner with your family. When you leave Phoenix at 3:00 p.m., the temperature is 78°F. You arrive in Flagstaff and the temperature is 46°F. You leave Flagstaff at 8:30 p.m. and the temperature is 33°F. When you return to Phoenix at 11:00 p.m., the temperature is 64°F.

    What are the 3 temperature changes you experienced?

    What is the average of these changes?

    How does this information impact your day trip?

6. After getting new carpet installed, Antonio noticed that the door would not close. He decided to trim 1/16 of an inch off of the bottom of the door to see if it would help. After doing this three more times, the door finally closed. If the door was originally 84 5/8 inches tall, how tall was it after he trimmed it? Use an equation and a diagram to justify your answer.

7. Rudy is an avid runner. In his first 400m race, his finishing time was 56.23 seconds. His goal is to lower his time by .35 seconds each race. How many races will he have to run before his time is under 54 seconds? Justify your answer.