

**Math Challenge 2010**  
**Pony Express**

1. Sharice bikes 2.5 times as fast as Mike runs, and in one hour they cover a distance of 42 miles. What is their combined distance if Sharice bikes for 0.5 hours and Mike runs for 1.5 hours?

Ans: 33 miles

2. Two adjacent faces of a rectangular box have areas 36 and 63. If all three dimensions are positive integers, find the ratio of the largest possible volume of the box to the smallest possible volume.

Ans: 9 : 1

3. Ryan has 120 coins in nickels and quarters. He has \$14.80 altogether. How many of each coin does he have?

Ans: 76 nickels, 44 quarters

4. A basketball player has a constant probability of 80% of making a free throw. What is the probability that her next successful free throw is the third or fourth one she attempts?

Ans: .0384

5. On a certain test, the average score of those passing is 65, while the average score of those failing is 35. If the average score for people taking this test is 53, what percentage of people taking the test passed?

Ans: 60%

6. Raw cucumbers are 95% water. One-hundred pounds of cucumbers are placed in a food dehydrator and dried until they are 90% water. What is the weight of the batch of dried cucumbers?

Ans: 50 lbs.