Answer Key
1. C 2. B 3. C 4. D 5. A 6. B 7. C 8. A 9. D 10. D

Answer Explanations
1. **C**. The question asks how much someone would have to drink to EXCEED his or her daily limit of 350 milligrams. This lets us know we are dealing with our magnesium intake being greater than 350. Choices A and B can be eliminated as they do not even have 350 milligrams included in the inequality. Choice D is wrong because the inequality would be finding they cups of juice needed to stay under the daily intake.

2. **B**. First, let's set up an inequality that we can use to solve this question with where x is the number of apples Geoff buys.

$$2+0.50x \le 7.75$$

Now, we solve for x.

$$0.50x \le 5.75$$
$$x \le 11.5$$

So, Geoff can buy 1 apple for \$2 and then 11 additional apples at \$0.50 each, for a total of 12 apples.

3. **C**. Set up an inequality where x is the number of bricks included in the shipment. Also keep in mind that the wooden crate itself weighs 28 pounds.

$$28+2x \le 500$$

Now solve for x.

$$2x \le 472$$
$$x \le 236 bricks$$

4. **D**. First, let's set up an inequality to model the amount of money Gillian can spend. Let x represent the months Gillian stays a member:

$$50+30x \le 1000$$

Solve for x to find the maximum number of months.

$$30x \le 950$$
$$x \le 31\frac{2}{3}$$

Gillian can keep her membership for 31 months with her budget. Now we divide 31 by 12 to find out how many years that is.

$$31 \div 12 = 2\frac{7}{12}$$

Gillian can be a member for 2 years and 7 months.

5. **A**. We find the average of a given set of data by adding all the values and then dividing that by the number of values. In this case, that would look like this:

$$\frac{180+160+210+180+x}{5}$$

Now, we set up an inequality to show that the average is equal to or greater than the 200 shirts per week goal that the company is trying to meet.

$$\frac{180+160+210+180+x}{5} \ge 200$$

So, we get answer A.

6. **B**. First, let's set up an inequality in which c represents cups of lemonade sold and d represents days past:

$$1.50c > 30 + 4d$$

This inequality will tell us how many cups are needed to make a profit. We know that 5 days is our period of time that Tim wants to make a profit by. We plug in that value for d and the solve for c.

$$1.50c > 30 + 4(5)$$

$$1.50c > 50$$

$$c > 33\frac{1}{3}$$

So, Tim must sell 34 cups of lemonade to make a profit, which corresponds to answer B.

7. **C**. With the information given, let's set up an inequality to demonstrate that Jamie is making more than Mike in which x represents the number of hours the two works.

$$20 + 4x < 15 + 6x$$

$$5 < 2x$$

$$2.5 < x$$

Since the question is asking for the minimum amount of full hours Jamie would have to work, we round up to 3.

8. **A**. The range of values for a single sub is as follows:

$$10 \le x \le 13$$

If we have 50 of these rolls, that means we must multiply each value by 50:

$$500 \le x \le 650$$

9. **D**. Set up an inequality to model the furnace's increasing heat. Let x represent the hours after 1 PM:

$$400 + 220x < 1500$$

Solve for x:

$$220x < 1100$$

$$x < 5 hours$$

The furnace should be turned off after 5 hours from 1 PM which is 6 PM.

10. **D**. Set up an inequality where x represents years:

$$568 + 7x \ge 700$$

Now solve for x:

$$7x \ge 132$$

$$x \ge 18.9$$

Since the problem is asking for full years, we round up the number to 19.