# **Math in Our Daily Lives**

## Rahaf Almasri

Life is math. You can never spend a normal day without practicing math.

## **Daily Routine**

From the first moment I wake up in the morning, numbers are a part of my daily routine. First, I have to check the weather: today's weather in Brooklyn is 55°F. After converting the temperature from Fahrenheit to Celsius, I see that it is 13°C, which means that it is a bit cold outside. Checking the weather also allows me to see the daily chance of rain. For example, today there is an 80% chance of rain, which means that the possibility of getting soaked is incredibly high. Another part of my daily routine is checking my weight. This allows me



The formula to convert from Farenheit to Celsius is: C = 5/9 \* (F - 32). To see how Rahaf calculated the temperature in Celsius, substitute F for 55, and solve the equation. (Shortcut: 5/9 is close to one half. See if you can solve the equation in your head, using this shortcut. Is your answer reasonably close? Try solving the equation again using other temperatures. to see if my diet is going on the right path. "Hmm, I gained one pound. I will decrease my daily calories and increase my exercise."



#### Saving Money on Coffee

My typical day can't start without a cup of hot coffee. Buying my coffee from a coffee shop would cost me \$2.50 daily, which would add up to \$75 a month. However, one cup of homemade coffee costs about \$1, which would add up to \$30 per month. So, to save some money, I will make my coffee at home.

## **Finding the Shortest Route**

To get to work, I have to drive 6 miles east and 8 miles south, which totals 14 miles. But I know that if I could find a diagonal route, it would save time and gas. In math, there is a theorem that proves that the diagonal is shorter. It is called the Py-thagorean Theorem. The theorem says:  $a^2 + b^2 = c^2$ .



Rahaf says she was spending \$2.50 per day on coffee. How did she get the monthly price of \$75? How could you calculate the yearly cost? According to her figures, how much will she save per month if she makes homemade coffee for herself every day? How much in a year? Explain how you got the answer.



If I substitute miles in for the letters, I would get  $6^2 + 8^2 = c^2$ . Therefore, 36 + 64 = 100. C = 10, which is 4 miles less.

#### **Income and Expenses**

I make \$15 an hour. If I worked 8 hours a day for 5 days a week, I would make a total of 15 x 8 x 5 = \$600 per week. 600 See p. 30 for more on the Pythagorean

a

Theorem.

x 4 = \$2,400 per month. But I have to earn an extra \$900 for other expenses, so I will try to get some overtime. I get paid time-and-a-half for overtime, which is 15 x 1.5 = \$22.5. How many hours do I have to work to earn \$900? If I divide \$900 by my overtime rate of \$22.50, I get 40. Therefore, I should work an additional 40 hours this month to add \$900 to my salary.

In order to buy a new bike as a birthday gift for my son, I went to a toy store that has bikes on sale for 50% off the regular price. The regular price is \$300 but with the 50% off it is:  $300 \times .5 = $150$ . I will also use a coupon for an extra 30% off the sale price:  $150 \times .3 = 45$ , and 150 - 45 = \$105. It's a good deal because I saved 300 - 105 = \$195 off the regular price. However, to be able to buy this bike, I will need to work even more overtime.

### **Calculating Length of Trip**

To get home from the toy store, I have to travel 25 miles. If I drove at a constant speed of 25 mph I would reach home in 1 hour because T = d/s. (Time = distance divided by speed.)  $T = \frac{25}{25}$ , so T = 1 hour. Of course there's no such thing as driving at constant speed in Brooklyn, but it is likely that I would average 25 mph.



According to labor law, most people should be paid timeand-a-half when they work over 40 hours in one work week. Calculate what time-and-a-half would be for you. Explain how you got it. Show your work.

## **Using Percents**

When I arrived home, my son had the score for his math test. The test had a total of 25 questions, and he got 24 correct. That sounds good, but I have to know his percentage score. So I have to express  $^{24}/_{25}$  as something over 100.  $^{24}/_{25} \ge 4/_{4} = 96/_{100}$ , so he scored 96%. That's great!

#### Have I Proved My Theory?

Those were some examples of my daily routine. I wanted to prove to everyone that you can never separate real life from math. If you want to save money on coffee, find a shorter route to work, or buy your kid a bike, math will help!

**AFTER YOU READ:** Rahaf says she makes \$15 per hour. Do you think she means *net* or *gross*? What do these words mean, and why do they matter?

Rahaf Almasri was a student in the TASC program at the Central Library in Brooklyn, NY. She is a Syrian mother who chose to take a chance on education in hopes of becoming a mathematics teacher to help immigrant students.

Monthly Budget		
Income	January	February
Wages		
Other		
Expenses		
Rent		
Food		
Utilities		
Transportation		
Other		
Savings		
for emergencies		
for college		
for retirement		
TOTAL		

Here is a sample of what a budget might look like. Use a spreadsheet program to make your own budget. Insert the rows you need. Consider adding columns for "Actuals," so you can see what you actually spent compared to what you budgeted for.

