

## Solutions:

### WEEK 1 SOLUTION:

$$\frac{500 \text{ miles}}{60 \text{ minutes}} = \frac{x \text{ miles}}{26 \text{ minutes}}$$

$$60x = 13,000$$

$$X = 216.67 \text{ miles}$$

The capital city the plane is flying over is London, England.  
Buckingham Palace, the Tower of London, the London Ferris wheel...

### WEEK 2 SOLUTION:

The football field is 300 feet long and 160 feet wide. The mower will need to cut 96 inch strips the length of the field. The mower will take 100 seconds to mow the length of the field, which is one strip. Therefore, the mower will take 9,600 minutes, which is 2 hours and 46 minutes, to mow the entire field.

### WEEK 3 SOLUTION:

The stone blocks in each pyramid weigh 11,500,000,000 tons (or 11.5 million tons).

If the Great Wall of China contained enough stone blocks to construct 120 pyramids:  
 $120 \times 11.5 \text{ million} = 1,380,000,000,000,000 \text{ pounds}$  (which can be written as 1 trillion, 380 billion pounds)

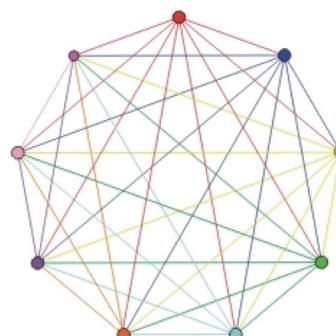
### WEEK 4 SOLUTION:

This is a recursive relation problem. The formula is  $\frac{n(n-1)}{2}$ .

$$\frac{9(9-1)}{2} = \frac{9(8)}{2} = 36 \text{ handshakes}$$

To the right is a pictorial representation of the problem.

A dot represents a person and each line segment represents a handshake between two people.



## Solutions:

### WEEK 5 SOLUTION:

The length of a tennis court is 78 feet (which is 936 inches).

The diameter of a tennis ball is 2.5 inches. The circumference of the tennis ball can be found by using the circumference formula,  $C = \pi d$ .

$$C = \pi(2.5) = 7.85 \text{ inches}$$

$$936 \div 7.85 = 119.24$$

The ball would roll approximately 120 times.

### WEEK 6 SOLUTION:

Let  $x$  represent the hours of labor and  $y$  represent the total price for the repair.

Write an equation that represents the total price for a service call from each company.

$$y = 90x + 70 \quad \text{Wayne's Plumbing Service}$$

$$y = 60x + 130 \quad \text{Joseph's Plumbing Service}$$

Solve by substitution:

$$90x + 70 = 60x + 130$$

$$30x = 60$$

$$X = 2$$

In 2 hours, the total price for the service call will be the same for both companies.

### WEEK 7 SOLUTION:

Let  $t$  = the number of hours Jose runs.

Then  $t + 2$  = the number of hours Sean runs.

Distance = rate  $\times$  time

Sean's distance =  $6(t+2)$

Jose's distance =  $8(t)$

Since the total distance is 40 miles, you can write the following equation.

$$8t + 6(t + 2) = 40$$

$$8t + 6t + 12 = 40$$

$$14t + 12 = 40$$

$$14t = 28$$

$$t = 2$$

Jose will have been running for two hours.

Sean will have been running for four hours.

## Solutions:

### WEEK 8 SOLUTION:

The diameter of the tire is 27 inches.

$$\text{Circumference} = \pi d \quad \text{or} \quad \text{Circumference} = 3.14(27)$$
$$C = 3.14(27)$$

The circumference of the tire is 84.78 inches.

$$\text{Seven Miles} = (5280 \text{ feet} \times 12 \text{ inches} \times 7) = 443,520 \text{ inches}$$

$$443,520 \text{ inches} \div 84.79 \text{ inches} = 5231 \text{ (rounded)}$$

The wheel will turn 5231 times during the seven mile bike race.

Note: The position of the gear does not affect the number of times the tire turns.