**Lower Elementary:**

*Question:* A plane has 9 seats in each row. In the first row, there is a man sitting in the first seat, a woman in the second seat, and another man in the third seat. If this pattern repeats for the whole row, how many men are in the row?

**Upper Elementary:**

*Question:* A plane leaves Toronto at 10:30 am heading to Vancouver. If the flight is 5½ hours long, what time will it be in Vancouver when it lands? (Toronto is 3 hours ahead of Vancouver.)

****

**Middle School:**

*Question:*  The ratio of child to adult passengers on a plane is 15:16. There is a total of 217 passengers on the flight. How many passengers are adults?

**Algebra and Up:**

*Question:* It takes 3 hours for a plane to travel 2742 kilometres with the wind. Flying against the wind, the plane can travel 2406 kilometres in the same amount of time. What is the speed of the plane in still air? What is the speed of the wind?

**Lower Elementary:**

*Question:* A plane has 9 seats in each row. In the first row, there is a man sitting in the first seat, a woman in the second seat, and another man in the third seat. If this pattern repeats for the whole row, how many men are in the row?

*Answer:* 6 men

*Solution:* Let’s write out the pattern and complete it for the whole row. M = man, W = woman. M, W, M, M, W, M, M, W, M

Counting the number of Ms, we find there are 6 men in the row.

**Upper Elementary:**

*Question:* A plane leaves Toronto at 10:30 am heading to Vancouver. If the flight is 5½ hours long, what time will it be in Vancouver when it lands? (Toronto is 3 hours ahead of Vancouver.)

*Solution:* One way to do this is to add 5½ hours to 10:30 am. Since ½ an hour is 30 minutes we add, 10:30 am + 5 hours + 30 minutes = 4:00 pm Toronto time. Since Vancouver is 3 hours behind Toronto it is, 4:00 pm
 − 3 hours = 1:00 pm in Vancouver when the plane lands.

**Middle School:**

*Question:*  The ratio of child to adult passengers on a plane is 15:16. There is a total of 217 passengers on the flight. How many passengers are adults?

*Answer:* 112 passengers are adults

*Solution:* Since we know the total number of passengers we need to find the ratio of adult passengers to total passengers. The ratio of child to adult is 15:16 making the ratio of adults to total number of passengers 16:31. Setting up the proportion, $\frac{16 adults}{31 children+adults}$ = $\frac{x adults}{217 children+adults}$ and solving for x, we get 112 adult passengers.

**Algebra and Up:**

*Question:* It takes 3 hours for a plane to travel 2742 kilometres with the wind. Flying against the wind, the plane can travel 2406 kilometres in the same amount of time. What is the speed of the plane in still air? What is the speed of the wind?

*Answer:* plane speed = 858 km/h, wind speed = 56 km/h

*Solution:* Using ***D*** = ***RT***, we can setup two equations. Let ***P*** = the speed of the plane in still air and ***W*** = the speed of the wind. Our equation with the wind is, 3(***P*** + ***W***) = 2742 and against the wind is 3(***P*** − ***W***) = 2406. Solving this system of equations

3 ***P*** + 3 ***W*** = 2742

3 ***P*** − 3 ***W*** = 2406

6 ***P*** = 5148

we find ***P*** = 858 km/h and ***W*** = 56 km/h.