September 2025 Challenge Problems Answers

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Problem 1 Solution:

Answer: 2 spots

Since there are 12 students in front of Alice and 6 behind her, including her there are a total of 12 + 6 + 1 students in the line. Since the number in the middle of 1 and 19 is 10, Bob's position in line is #10. Note that Alice is in position #13, so there are **2** spots between Alice and Bob

Problem 2 Solution:

Answer: 4 hours

In one hour, Max can paint 1/6 of the wall and Alex can paint 1/12 of the wall. So, in 1 hour they can together paint 1/6 +1/12 = 1/4 of the wall. Therefore, it takes them **4** hours to paint the wall if they work together.

Problem 3 Solution:

Answer: 2 hours

Leila is able to paint 1/4 of the wall in 1 hour. So, if she joins in, the 3 will be able to paint 1/6 + 1/12 + 1/4 = 1/2 of the wall together. Therefore, it will take them **2** hours to paint the wall.

Problem 4 Solution:

Answer: 25 meters

Since Ava is 5 times faster, by the time they meet she would have run 5 times the distance as Mila. We know together they've run 30 meters, so Ava must have ran 5/6 of that distance, which is **25 meters**. (Mila would've ran 1/6 of the distance, 5 meters, which is 5 times less than Ava)

Problem 5 Solution:

Answer: Maximum is 7 pieces, minimum is 4 pieces.

We know that the first line will split the paper into 2 pieces. Afterwards, our 2nd line can split the 2 regions created with our first line, to create 2 more pieces, resulting in 4. Finally, our third line can cross a maximum of 3 of these 4 regions, adding 3 more pieces. Therefore, the maximum number of pieces we can get is 2 + 2+ 3 = **7 pieces.**

We know each line has to create a minimum of 1 more region, so we can get a minimum of 1 (from starting paper) + 3(1 region added per line) = **4 pieces.**