Chanukah Candles Logic Puzzle Walkthrough

The number of candles on the left plus the number on the right of any candle equals 7. So the possible results of multiplying them are 0x7=0, 1x6=6, 2x5=10 and 3x4=12. Only 6 is a possible day number, so we infer that candle number 6 is either in position 2 or position 7. But we are told there are more candles on the left, so

Candle 7 is day 6

Next we are told 3 days multiplied together is a day. Possibilities are 1x2x3=6 or 1x2x4=8, everything else is too big. But 6 has already been allocated, so the candle in question is 8, with position 8-5=3, so

Candle 3 is day 8

Now we have to add 3 days to get another day. 1+2+3=6 has already been allocated, 1+2+4=7, anything else is at least 8 which has been allocated. So subtracting 2 as directed

Candle 5 is day 7

No number can divide an adjacent number. Thus 3 cannot be next to 6, and 2 cannot be next to 4, 6 or 8, and 4 cannot be next to 8 so

Candle 1 is 2. We have 2-8-7-6-

Now we're told adjacent numbers cannot differ by 1. Thus day 3 has to be in the 4^{th} position (can't be next to 6 or 1). Now 5 also can't be candle 6 or 8, so

Candle 2 is day 5 and candle 4 is day 3 giving 25837-6-

Finally, two days equal the sum of their neighbours. We have 8=5+3 and we need 7=3+4.

Candle 6 is 4 and Candle 8 is 1, and the layout is 25837461

Happy Chanukah!