* It took me quite a while to understand what was going on and I think it's just pure confusion that the whole amount is not being worked out together. It seems assumptive that we would know what happens to 12, I was doing maths and 12 + 5 was not equaling the answer 8.  
  But! the explanation that Mark seems to be looking for is that the loop starts over once 125 / 10 happens.

So your number would end up being 12 then becomes the digit value of 2 when the number % 10 happens, then the digit is added to your sum for a total of 7. Then it takes the number 12 and divides by 10 again to give you 1. Then the loop starts again the digit is 1 % 10  is 1 then add that digit of 1 to your sum and voila! Total is 8.  
I definitely feel this could be clarified a bit better IMO in the lesson

Simplified math below:

number = 125  
digit = 125 % 10 = 5  
sum += 5(digit)

number  = 125 / 10 = 12  
digit = 12 % 10 = 2  
sum +=  7 (5+2)

number = 12 / 10 = 1  
digit 1 % 10 = 1  
sum += 8(5+2+1)

* 1 % 10 = 1 (How? - explanation below)

To make the understanding simple, here is how I think of it.  
Here 1 is the dividend, 10 is the divisor so in the world of integers 1/10 = 0 and so is 2/10...  
Now dividend = divisor x quotient + remainder  
So  
1 = 10 x 0 + 1 (only 1 possibility that 1 is remainder)  
2 = 10 x 0 + 2  
and so on.

* Remainder is always positive (rule).