To find the term number (n) when the n-th term (a_n) is 78 in the arithmetic progression (AP) with first term (a_1) 3 and common difference (d) 5, we can use the formula:

$$a_n = a_1 + (n-1)d$$

Substituting the given values:

$$78 = 3 + (n-1) \times 5$$

Now, solve for n:

$$\begin{aligned} 78 &= 3 + 5(n-1) \\ 75 &= 5(n-1) \\ 15 &= n-1 \\ n &= 16 \end{aligned}$$

Therefore, the term number (n) when $a_n = 78$ is 16.