

Three consecutive terms of an arithmetic sequence are $x - 3$, 12 , $3x - 5$

Find x

Find the common difference

$$\begin{aligned}U_2 - U_1 &= 12 - (x - 3) \\ &= 15 - x\end{aligned}$$

$$\begin{aligned}U_3 - U_2 &= 3x - 5 - 12 \\ &= 3x - 17\end{aligned}$$

$$\begin{aligned}3x - 17 &= 15 - x \\ 4x &= 32 \\ x &= 8\end{aligned}$$

Check that the result makes sense.
Substitute into original expressions

$$\begin{aligned}x - 3, 12, 3x - 5 \\ 5, 12, 19\end{aligned}$$

Arithmetic sequence with $d = 7$