

Marching Band

When the band lines up in ...

- 2s, there is one left over \rightarrow must be an odd number
- 3s, there is two left over
- 4s, there is three left over
- 5s, there is four left over \rightarrow must end in a 9
- 6s, there is five left over
- 7s, there is no one left over \rightarrow must be a multiple of 7

How many students could be in the marching band?

multiples of 7:

7, ~~14~~, 21, ~~28~~, 35, ~~42~~, 49, ~~56~~, 63, ~~70~~, 77, ~~84~~,
91, ~~98~~, 105, ~~112~~, 119, ~~126~~, 133, ~~140~~

$$\begin{array}{r} 16 \text{ r. } 1 \text{ X} \\ 3 \overline{) 49} \end{array}$$

\leftarrow should have
a remainder
of 2

$$\begin{array}{r} 39 \text{ r. } 2 \checkmark \\ 3 \overline{) 119} \end{array}$$

$$\begin{array}{r} 29 \text{ r. } 3 \checkmark \\ 4 \overline{) 119} \end{array}$$

$$\begin{array}{r} 19 \text{ r. } 5 \checkmark \\ 6 \overline{) 119} \end{array}$$

The answer is: 119

Thanks to bit.ly/mathwalks2020 for this puzzle