Wave on a string:

$v = 150\ m/s$ for $T_s = 75\ N$

$$v = \sqrt{\frac{T_s}{\mu}}$$

Now, $v_{new} = 180\ m/s$, find $T_{s\,new}$

$$v_{new} = \sqrt{\frac{T_{s\,new}}{\mu}} \Rightarrow T_{s\,new} = v_{new}^2 \mu$$

and $$\mu = \frac{T_s}{v^2}$$

so $$T_{s\,new} = v_{new}^2 \frac{T_s}{v^2} = \underline{108\ N}$$