A string 9.5m long has a mass of 32g. How much time does it take a wave to travel from one end to the other if tension is

1) 8.6N
2) 9.0N
3) 10.0N

$$v = \sqrt{\frac{F}{u}} \qquad u = \frac{m}{L} \qquad v = \frac{\Delta x}{\Delta t}$$

$\Delta x = L$ for our case

$$\Delta t = \frac{\Delta x}{v}$$

$$\Delta t = \frac{L}{\sqrt{\frac{F}{u}}} = L\sqrt{\frac{u}{F}} = L\sqrt{\frac{m}{FL}}$$

1)

$$\Delta t = 9.5m\sqrt{\frac{32\,E\text{-}3\,kg}{8.6N(9.5m)}} = 1.88E\text{-}1\,s$$

$$\boxed{0.19s}$$

2) $$\Delta t = L\sqrt{\frac{m}{FL}}$$

$$= 9.5m\sqrt{\frac{35E-3kg}{(9.0N)\,9.5m}} = 1.84E-1s$$

$$\boxed{0.18s}$$

3) $$\Delta t = 9.5m\sqrt{\frac{35E-3kg}{10.0kg\,(9.5m)}} = 1.74E-1s$$

$$\boxed{0.17s}$$