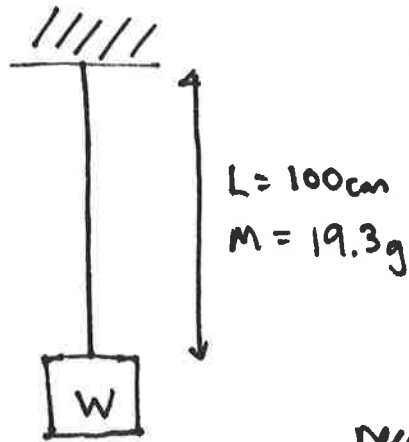


ASG v2 Ex 2.2 (Wire breaking)



A weight  $w = 10.2 \text{ kg}$   
will (just) snap the wire.

How long would the wire  
need to be before it (just)  
snaps under its own weight?

Its linear mass density is  $\lambda = \frac{M}{L} = \frac{19.3 \text{ g}}{100 \text{ cm}}$

$$\lambda = 0.193 \text{ g/cm}$$

For it to weigh 10,200 grams, it would need to be

$$L = 10,200 \text{ g} \cdot \frac{1 \text{ cm}}{0.193 \text{ g}} \approx 53,000 \text{ cm}$$

$$L \approx 530 \text{ meters}$$