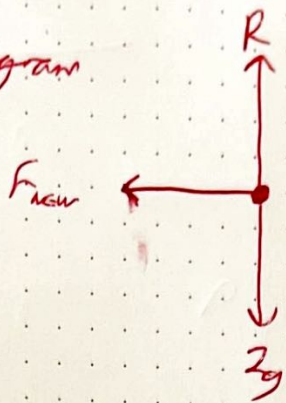


Non force diagram



$$R \uparrow \quad R = 2g$$

Apply $F=ma \rightarrow$

$$-F = 2a$$

but $F = 2g \times 0.6$

$$\Rightarrow a = \frac{-14.7}{25}$$

≈ -5.88

s -

v - 17.34

v - 0

a - -5.88

t

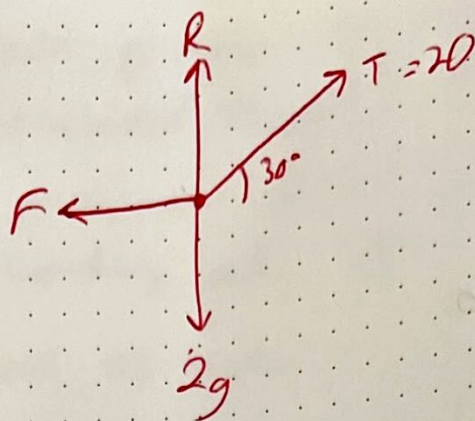
$$v = u + at$$

$$\Rightarrow t = \frac{17.34}{5.88}$$

$$= 2.949109203$$

$$\approx 2.95 \text{ s}$$

9 a)



→ direction of motion

$$\begin{aligned}
 \text{b) } R \uparrow \quad R + 20 \sin(30) &= 2g \\
 \Rightarrow R &= 2g - 20 \sin 30 \\
 &= \frac{48}{5} \text{ N}
 \end{aligned}$$

Then $F = mR$, with $m = 0.6$

$$\begin{aligned}
 \text{So } F &= \frac{6}{10} \times \frac{48}{5} \\
 &= \frac{144}{25}
 \end{aligned}$$

Apply $F = ma \rightarrow$

$$T \cos(30) - F = 2a$$

$$\Rightarrow 20 \cos(30) - \frac{144}{25} = 2a$$

$$\Rightarrow a = \frac{20 \frac{\sqrt{3}}{2} - \frac{144}{25}}{2}$$

$$= 5.78 \text{ ms}^{-2}$$

c) after 3 seconds

$$v = u + at$$

$$v = 3 \times 5.78$$

$$= 17.34076 \text{ m/s}$$