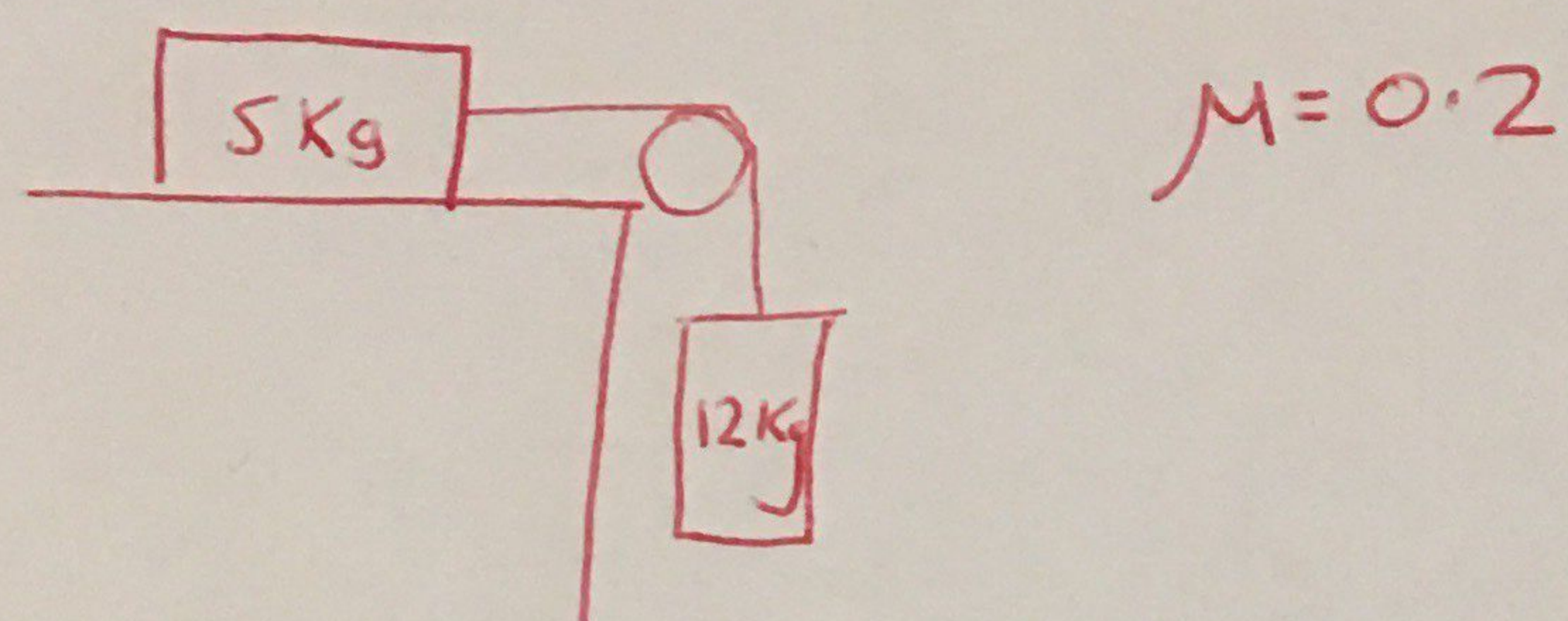
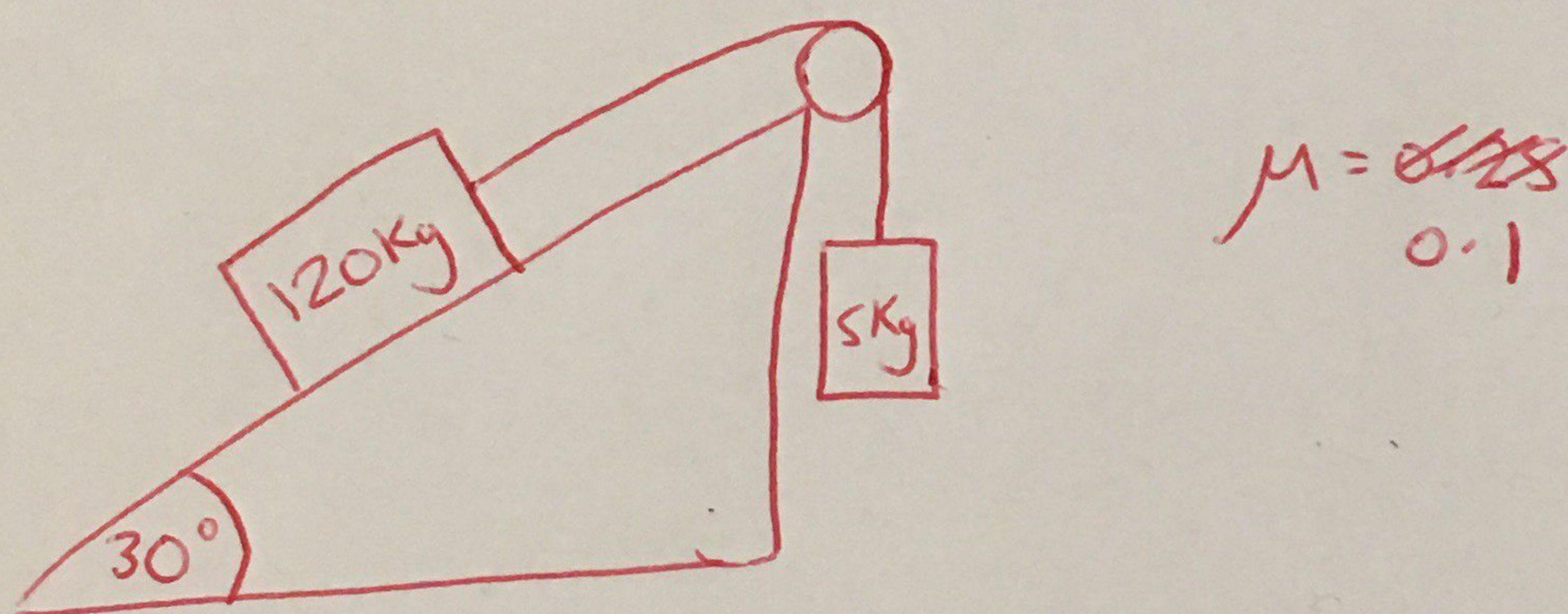


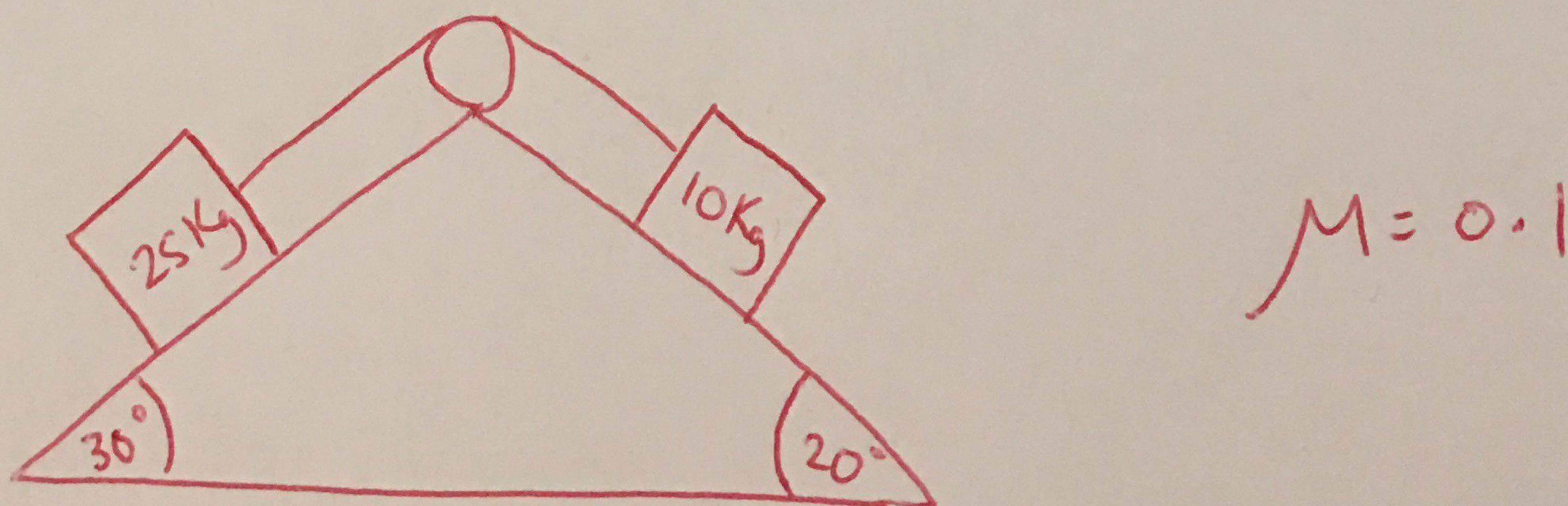
Q1) Find the acceleration & tension in the following Systems:



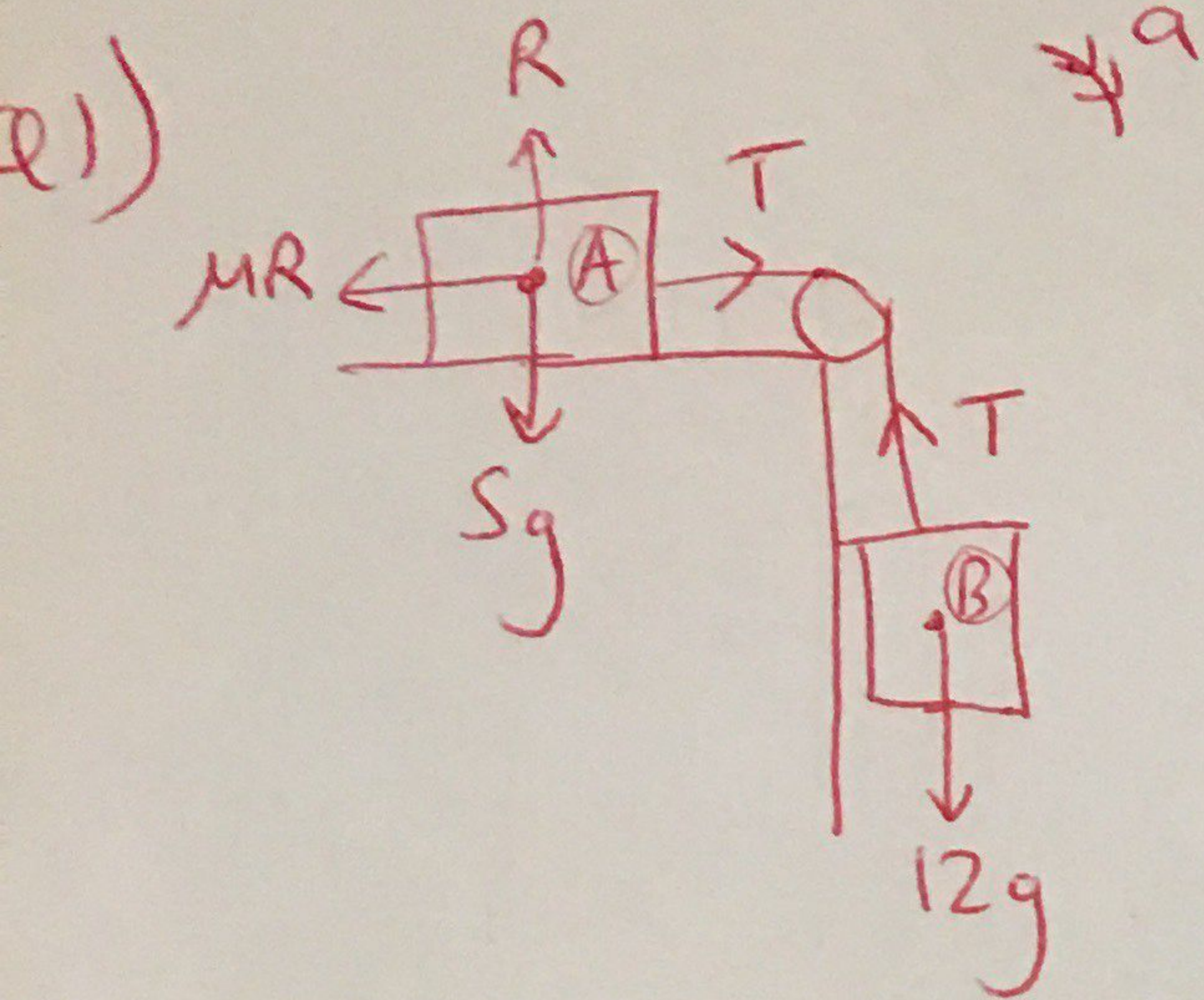
Q2)



Q3)



Solution



$$\mu = 0.2$$

$$R = Sg$$

$$MR = 0.2(Sg)$$

$$MR = 9.81 \text{ N}$$

$$\textcircled{A} \quad \underline{F = ma}$$

$$T - 9.81 = 5a$$

$$\textcircled{B} \quad 12g - T = 12a$$

$$\textcircled{A} + \textcircled{B}$$

$$12g - 9.81 = 17a$$

$$107.91 = 17a$$

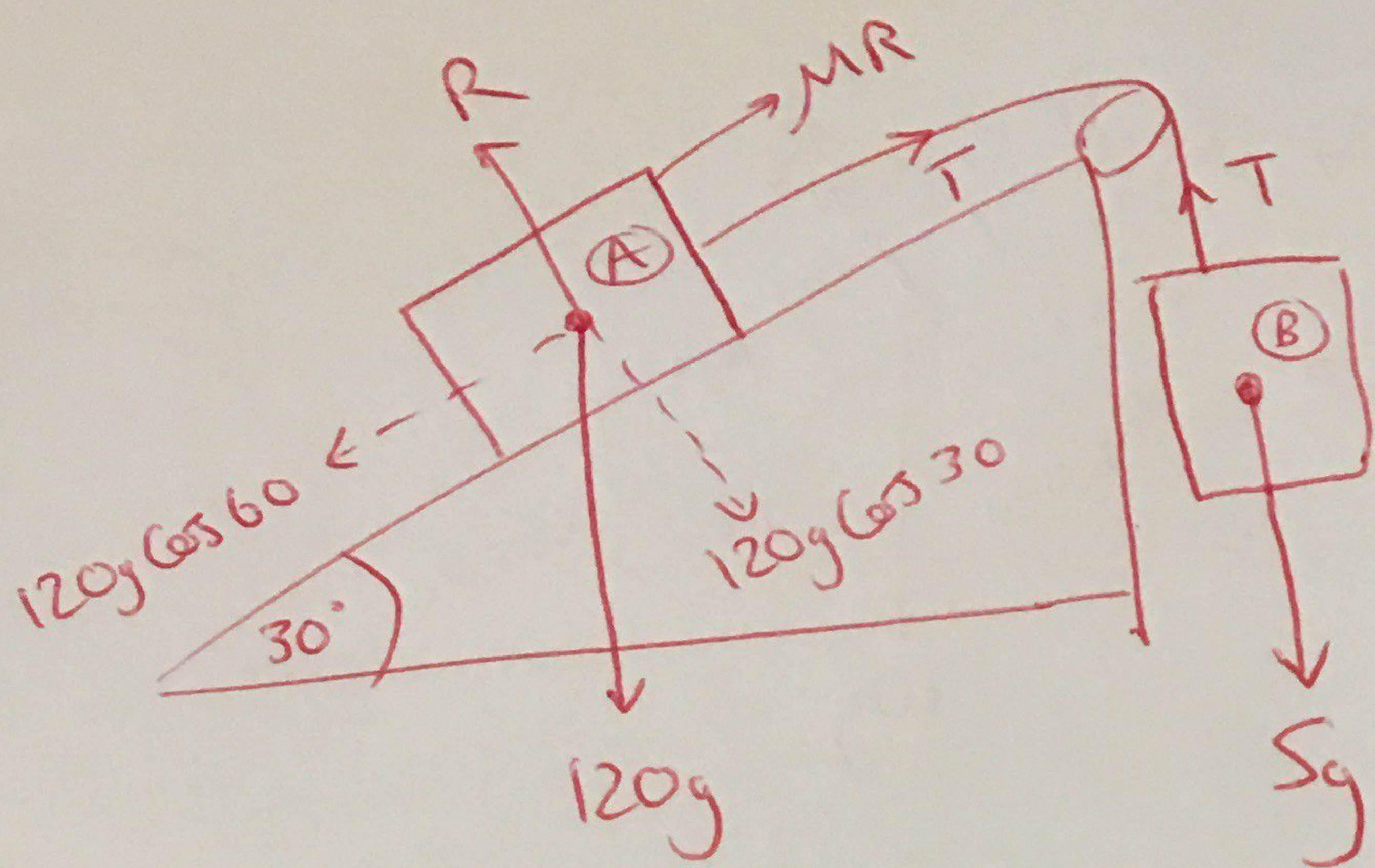
$$6.35 \text{ ms}^{-2} = a \rightarrow \text{in } \textcircled{A}$$

$$T - 9.81 = 5(6.35)$$

$$T = 31.75 + 9.81$$

$$T = 41.56 \text{ N}$$

Q2)



$$\mu = 0.1$$

$$MR = 101.95$$

(A) $F = ma$

$$120g \cos 60 - \overset{MR}{\downarrow} 101.95 - T = 120a$$

$$486.65 - T = 120a$$

(B)

$$T - Sg = Sa$$

+ (B)

$$486.65 - Sg = 125a$$

$$437.6 = 125a$$

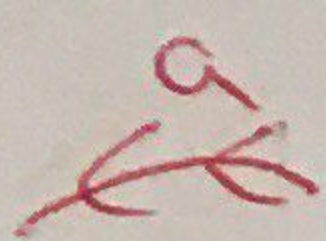
$$3.5 \text{ ms}^{-2} = a$$

→ in (B)

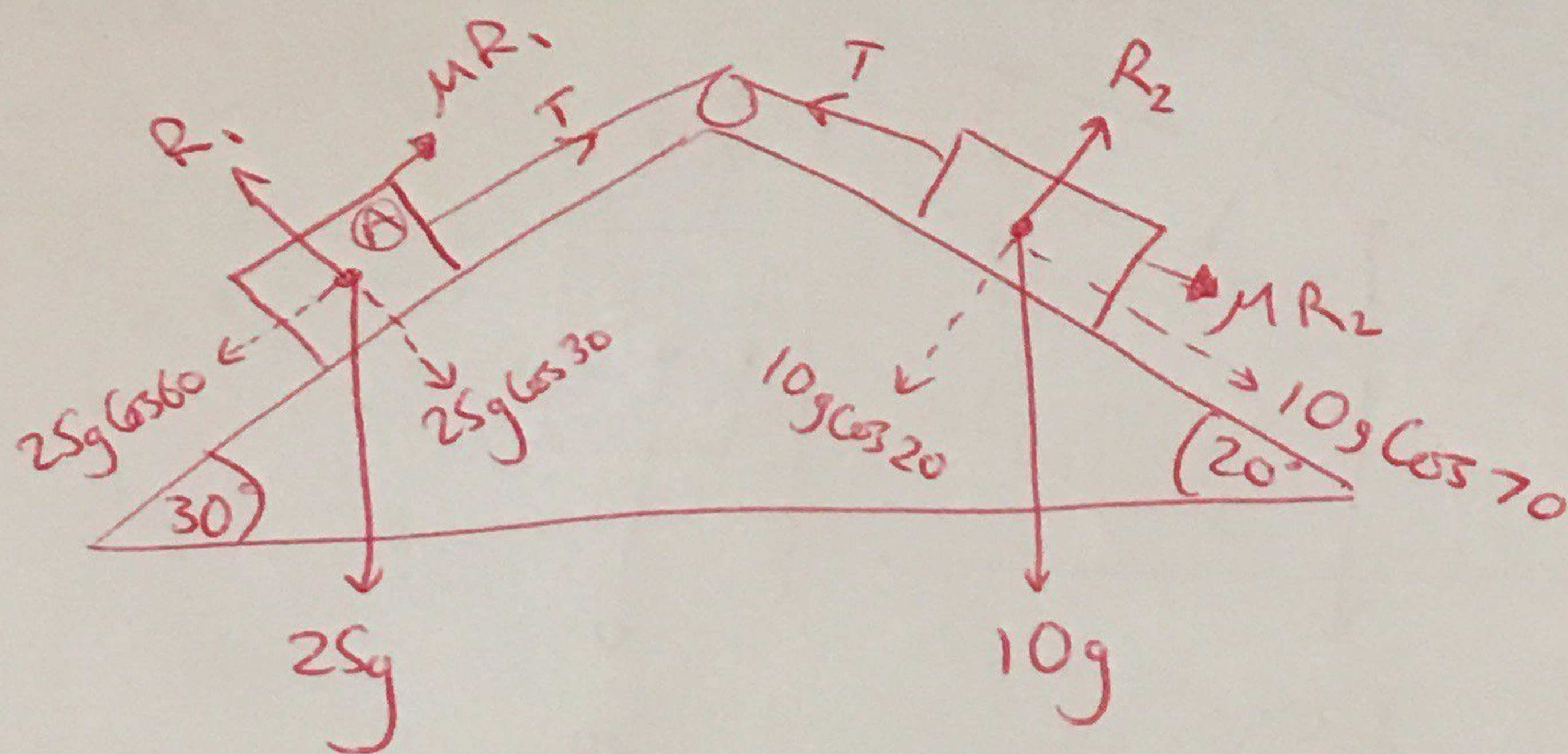
$$T = S(3.5) + Sg$$

$$T = 66.55 \text{ N}$$

03)



$\mu = 0.1$



(A)

$$R_1 = 25g \cos 30$$

$$MR_1 = 21.24 \text{ N}$$

$F = ma$

MR_1
↓

$$25g \cos 60 - 21.24 - T = 25a$$

$$101.39 - T = 25a$$

(B)

$$R_2 = 10g \cos 20$$

$$MR_2 = 9.22 \text{ N}$$

$F = ma$

$$T - 10g \cos 70 - 9.22 = 10a$$

$$T - 42.77 = 10a$$

(A) + (B)

$$101.39 - 42.77 = 35a$$

$$58.62 = 35a$$

$$1.67 \text{ ms}^{-2} = a$$

→ in (B)

$$T - 42.77 = 10(1.67)$$

$$T = 16.7 + 42.77$$

$$T = 59.47 \text{ N}$$