

Forces #2

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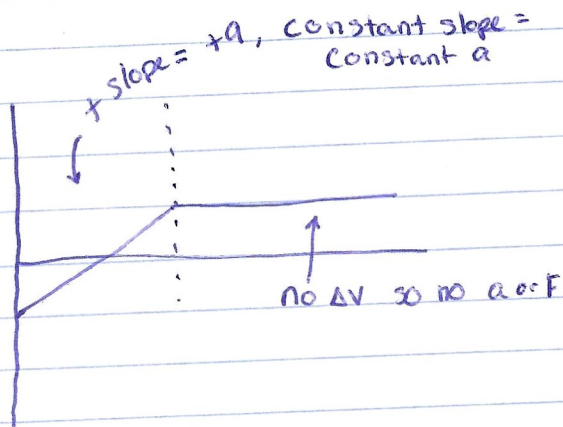
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(2)

3
(b)

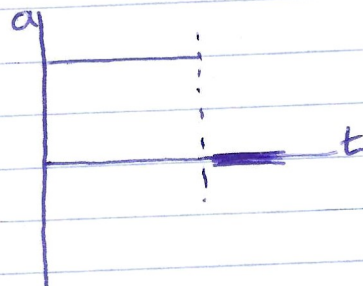
- Concept

19) Given v vs t

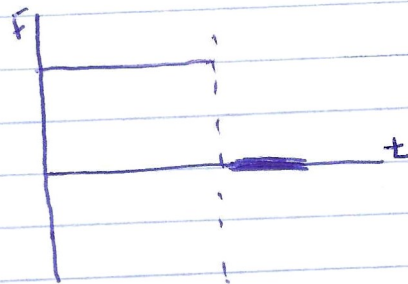


(1)

Choose a vs t

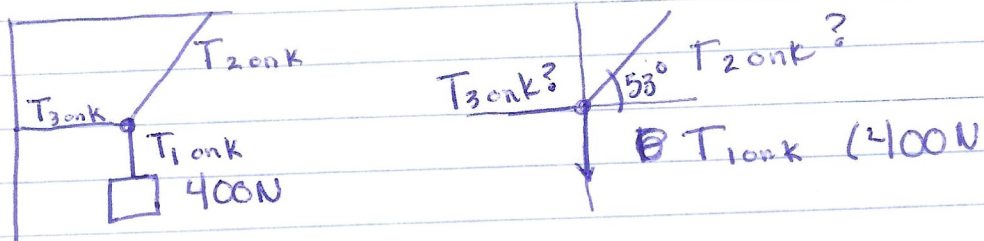


Choose F vs t



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6) Three ropes pull knot



- Use qualitative reasoning (no math) to determine T_2 & T_3
- Explain in words how arrive

(1)

① The vertical component of T_2 will also equal 400N b/c the forces are balanced.

② Knowing the angle + T_{2y} you can solve for T_2 using the sin function

③ The horizontal component of T_2 can then be found using cos

④ The horizontal component of T_2 and T_1 are equal because the forces are balanced

★ MP has mc

Since the knot is in equilibrium the mag of vector sum of F exerted by T_2 & T_3 must equal T_1

2

7) solve #6 using NZL

$$\textcircled{1} \sum F = 0 \text{ N}$$

$$\textcircled{2} T_{2y} - F_1 = 0 \text{ N}$$

$$T_{2y} = T_1 = 400 \text{ N}$$

$$T_2 \sin \theta = T_1$$

$$T_2 = \frac{T_1}{\sin \theta} = \frac{400 \text{ N}}{\sin 53^\circ} = \boxed{500 \text{ N}}$$

(1)

$$\textcircled{3} \sum F = 0 \text{ N}$$

$$T_{2x} - T_3 = 0 \text{ N}$$

$$T_2 \cos \theta = T_3$$

$$(500 \text{ N}) \cos 53^\circ = T_3$$

$$\boxed{T_3 = 300 \text{ N}}$$