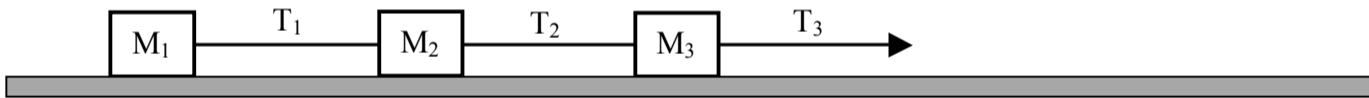


\* A 40 kg skier skis directly down a slope angled  $10^\circ$  with respect to the horizontal. A wind is blowing horizontally with a component of force that directly opposes the skier's downward motion. What is this component wind-force if the skier's speed downhill is (a) a constant and (b) increasing at a rate of  $1.0 \text{ m/s}^2$ .

\* Three connected blocks are pulled to the right on a horizontal frictionless table by a force of magnitude  $65.0 \text{ N}$ . If  $M_1 = 12.0 \text{ kg}$ ,  $M_2 = 24.0 \text{ kg}$  and  $M_3 = 31 \text{ kg}$ , calculate (a) the system's acceleration, and (b) the tensions  $T_1$  and  $T_2$ . **You must draw Free Body Diagrams to get full credit.**



\* In a tug-of-war between two athletes, each pulls on the rope (Assume the rope can be treated as if it has no mass) with a force of  $200 \text{ N}$ . What is the tension in the rope? If the rope does not move, what force does each athlete exert on the ground? **You must draw free body diagrams** and clearly show directions of forces.