

Name: _____

Date: _____



**ISTANBUL
INTERNATIONAL
COMMUNITY
SCHOOL**
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Physics

Forces IV

1. An 8 kg block is in equilibrium on an incline of angle $\theta = 20^\circ$. Draw a diagram, label forces, give $F_{\text{net},x}$ and $F_{\text{net},y}$, and find F_n of the incline on the block.

$$F_{\text{net},x} =$$

$$F_{\text{net},y} =$$

$$F_n =$$

2. A box slides down a 36.5° ramp with an acceleration of 1.41 m/s^2 . Determine the coefficient of kinetic friction between the box and the ramp.
3. A 4.00 kg block is pushed along a ceiling with a constant applied force of 85 N that acts at an angle of 55° with the horizontal, as shown below. The block accelerates to the right at 6.00 m/s^2 . Determine the coefficient of kinetic friction between the block and the ceiling.

4. A block with a mass of 14 kg is held in equilibrium on an incline of angle $\theta = 30.0^\circ$ by the horizontal force, $\mathbf{F}$, as shown in the figure below. (Disregard friction)

- a. Find the magnitude of $\mathbf{F}$.



- b. Find the normal force exerted by the incline on the block.