You are welcome to do this quiz together with 1 or 2 neighbors sitting nearby. However, each student has to fill out her/his individual scoring form and provide the answers for her/his individualized quiz form. Please fill out carefully your name, PID and the CODE of your quiz on the scoring form NOW. The quiz cannot be graded without the CODE.

Choose only one answer for each problem.

1. [4pt] A force $\vec{F}$ acts on a mass $M$, which is on a horizontal frictionless surface. Force $\vec{F}$ has a magnitude of 2.50Mg. Calculate the magnitude of the acceleration of mass $M$, in $m/s^2$.

$$a = \frac{F}{M} = \frac{2.5 \text{ Mg}}{M} = 2.5g = 2.45 \times 10^1 \text{ m/s}^2$$

A) $2.10 \times 10^1$ B) $2.45 \times 10^1$ C) $2.97 \times 10^1$ D) $3.36 \times 10^1$
E) $3.93 \times 10^1$ F) $4.50 \times 10^1$ G) $5.38 \times 10^1$ H) $6.29 \times 10^1$

2. [5pt] The Mass $M$ is now placed on a frictionless incline with an angle $\theta = 39.0^\circ$ with respect to the horizontal. The same force $\vec{F}$, with a magnitude of 2.50Mg is applied to $M$ directed up the incline as shown. Calculate the magnitude of the acceleration of $M$, in $m/s^2$.

$$a = \frac{\text{Net along plane}}{M} = \frac{F - Mg\sin\theta}{M} = \frac{2.50 \text{ Mg} - Mg\sin\theta}{M}$$

A) $3.32$ B) $4.41$ C) $5.86$ D) $7.80$
E) $1.04 \times 10^1$ F) $1.38 \times 10^1$ G) $1.84 \times 10^1$ H) $2.44 \times 10^1$