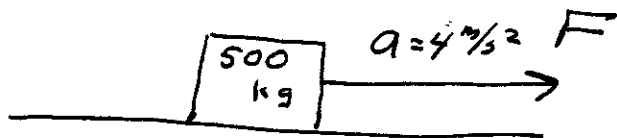


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Answer

How much force is needed to accelerate a 500.0 kg mass at a rate of acceleration of 4.000 m/s/s in a straight horizontal direction on a frictionless surface on Earth where $g = 9.800 \text{ m/s/s}$?



We know:

On Earth

Going horizontal so we can ignore overcoming gravity.

No friction so we can ignore any force to overcome friction.

Simply use $\vec{F} = m\vec{a}$

$$\vec{F} = m\vec{a}$$

$$\vec{F} = (500.0 \text{ kg})(4.000 \text{ m/s}^2)$$

$$\vec{F} = 2000. \frac{\text{kg m}}{\text{s}^2}$$

$$[\text{Newton} = 1 \frac{\text{kg m}}{\text{s}^2}]$$

$$\vec{F} = 2000. \text{ N.}$$