Answer on Question #64169 – Physics – Mechanics | Relativity

Question:

What horizontal force is required to drag a sack of rice weighing 115 lbs if the coefficient of friction is 0.24? a) when the force is parallel to the surface, b) when the force makes 38o above the horizontal.

Solution:

a)

$\vec{F} = -\overrightarrow{F_{fr}};$

$|\vec{F}| = |\overrightarrow{F_{fr}}|;$

$F = \mu mg = 122.69\ N;$

b)

$\vec{F} = -\overrightarrow{F_{fr}};$

$|\vec{F}| = |\overrightarrow{F_{fr}}|;$

$F\cos(\alpha) = \mu mg \Rightarrow F = \frac{\mu mg}{\cos(\alpha)} = 155.69\ N;$

Answer:

a) $F = 122.69\ N;$

b) $F = 155.69\ N.$