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List of all problems on top of page 1

Hw #1: 1.1, 1.5, 1.11, 2.5, 2.7, 2.11

Start ALL problems at top of page

John Doe ← Name
E 240 ← Class
hw #1 ← Hw # on 1st page

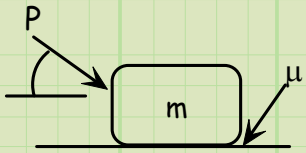
My prob # | Book prob # | Brief prob descriptor

#1) Problem 1.1 - P is applied to mass. Friction exists

Given: m (2 kg), P (3N), μ (.4), θ (30 deg), g (9.81 m/s^2) ← Given

Find: acceleration a of block ← Find

Solution:



Space diagram

coordinate system showing (+) directions

ΣFx: $P\cos\theta - Ff = ma$

ΣFy: $-P\sin\theta - mg + N = 0$

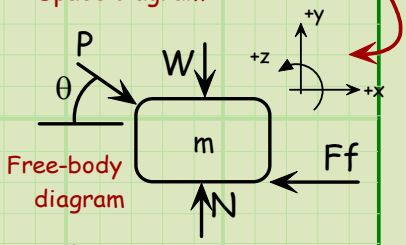
F= ma equations in variable form

Show work

$N = P\sin\theta + mg$ — fm y eqn

$Ff = \mu N = \mu(P\sin\theta + mg)$ — Friction

$a = (P\cos\theta - Ff)/m$ — fm x eqn



Free-body diagram

Explain where each equation comes from

$$a = \frac{[P\cos\theta - \mu(P\sin\theta + mg)]}{m}$$

"Variable" solution has only GIVEN variables, is simplified, BOXED, & on separate line. IMPORTANT ANSWER!

$$a = \frac{[3N\cdot\cos30 - (0.4)\{3N\cdot\sin30 + (2\ kg)(9.81\ m/s^2)\}]}{(2\ kg)}$$

Plug in values with units

$$\boxed{a = 5.52\ m/s^2}$$

Numerical solution - BOXED, includes units & proper sig figs, placed on separate line

#2) Problem 1.2 - Next problem descriptor .....

Big fat line before next problem

Grid on BACK side (do NOT write on back side)

Don't start problems lower than what is shown here (about half way between last 2 hole punches)

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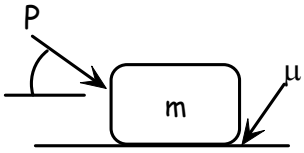

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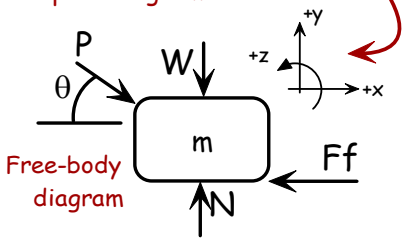

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