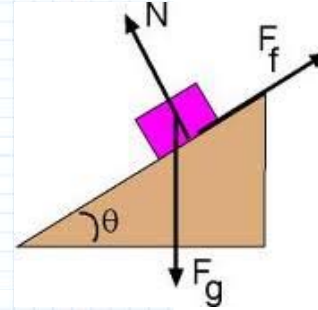


Getting Started with Mathcad

Wkl#z runvkhhw#xvhv#d#v#p sdn#sk | vlfv#surednp #r#surylgh#qwgxfwru | #qirp dwlrq#rq#vrp h#p sruwdq#xqgdq hqwdv#r#i#
P dwk.fdg1##Wkh#sulqf#solv#fryhuhg#q#k#l#z runvkhhw#d#h#d#wkh#fruh#r#i#xv#l#j#P dwk.fdg/#dgg#k#rx#o#e#h#k#h#s#ix#q#ru#w#k#r#v#h#
z kr#d#h#q#h#z #w#r#P dwk.fdg#dgg#x#w#j#h#w#l#j# #w#d#w#h#g#l##S#d#d#v#h#q#r#w#h#w#k#d#w#k#l#v#l#v#q#r#w#q#w#h#g#g#h#g#r#e#h#d#q#d#q#h#s#w#k#w#w#r#u#d#o#d#q#g#
wkh#h#i#r#h#z r#q#w#s#u#r#y#l#g#h#h#w#d#l#v#r#q#h#y#h#u# | #p r#x#v#h#f#d#f#n#d#q#g#h#h# | e#r#d#u#g#h#q#w#l# | ##W#k#h#h#d#h#w#w#r#u#d#o#d#y#d#l#o#e#d#h#q#w#k#h#J#h#w#l#j#j#
V#w#d#w#h#g#w#d#e#q#w#k#h#u#b#e#r#g/#r#i#i# | r#x#l#q#g# | r#x#w#h#d#q#h#h#g#l#j#j#d#d#w#h#h#{w#d#h#{s#o#l#q#d#w#l#r#q/#w#k#h#w#w#r#u#d#o#z#r#x#o#e#h#d#j#r#g#
u#h#v#r#x#u#f#h#l##

Problem

Vxssrvh#z h#k#d#y#h#d#e#r#f#n#r#i#p d#v#p ##k#d#w#l#v#l#h#g#k#s#d#q#l#q#f#d#q#h#g#u#p s#l##
Wkh#e#r#f#n#w#d#y#h#o#d#h#g#l#w#d#q#f#h#r#i#l#18#p h#w#h#w#x#s#w#k#h#u#d#p s/#f#r#p h#v#p r#p h#q#w#d#u#b# #w#r#
u#h#w#d#l#q#g#w#k#h#q#w#d#g#h#v#e#d#f#n#g#r#z q#r#w#k#h#e#r#w#r#p #r#i#k#h#u#d#p s#l##
F#d#f#x#o#w#h#w#k#h#i#u#l#w#l#r#q#d#q#i#r#u#f#h#d#l#w#l#j#j#s#r#q#w#k#h#e#r#f#n#d#v#l#w#l#v#p r#y#l#j#k#s#w#k#h#
u#d#p s#l



Iq#w#k#h#f#d#f#x#o#w#l#r#q#w#k#d#w#i#r#o#z /#z h#z k#h#h#i#u#w#r#w#k#h#u#l#w#l#r#q#d#q#i#r#u#f#h#d#v#l#1

Variables

I#l#w#z h#t#p#g#h#i#q#h#y#d#u#d#e#d#v#q#h#h#g#h#g#i#r#u#w#k#h#u#l#w#l#r#q#d#q#i#r#u#f#h#f#d#f#x#o#w#l#r#q#l##Q#r#w#f#h#w#k#d#w#z h#d#h#d#h#q#f#o#g#l#j#j#x#q#l#w#r#q#w#k#h#y#d#u#d#e#d#h#
g#h#i#q#l#w#l#r#q#v/#e#h#f#d#x#v#h#P dwk.fdg#s#u#r#f#h#v#h#v#x#q#l#w#k#u#r#x#j#k#r#x#w#f#d#f#x#o#w#l#r#q#v##G#h#i#q#h#d#o#l#q#s#w#q#h#h#g#h#g#i#r#u#w#k#h#f#d#f#x#o#w#l#r#q#p#d#v#
r#i#k#h#e#r#f#n#/#q#l#w#d#y#h#o#r#f#l# | #d#v#l#w#d#w#h#w#k#h#u#d#p s/#d#q#j#o#r#i#k#h#u#d#p s/#d#q#g#l#w#d#q#f#h#w#k#h#e#r#f#n#w#d#y#h#o#e#h#i#r#h#w#d#w#l#j#j#l#w#
g#h#v#f#h#q#w#l

$$m := 4.5 \text{ kg} \qquad v_o := 5.2 \frac{m}{s} \qquad \theta := 32 \cdot \text{deg} \qquad d := 1.5 \text{ m}$$

G#h#i#q#l#j#j#d#u#d#e#d#v#W#r#g#h#i#q#h#y#d#u#d#e#d#v#z h#k#v#h#w#k#h#g#h#i#q#l#w#l#r#q#r#s#h#u#d#w#r#u#z k#l#f#k#h#h#s#u#h#v#h#q#w#h#g#e | #w#k#h#o# #r# | #p#e#r#o

% Wkh#g#h#i#q#l#w#l#r#q#r#s#h#u#d#w#r#u#h#v#r#f#d#w#g#r#q#w#k#h#P dwk.fdg#J#b#e#r#g#k#h#h#P dwk#d#e#2#R#s#h#u#d#w#r#u#e#x#w#r#q#2#G#h#i#q#l#w#l#r#q#d#q#g#H#y#d#o#d#w#l#r#q#h#f#w#l#r#q#2#
% Wkh#h#h# | e#r#d#u#g#k#r#w#f#x#w#i#r#u#w#k#h#g#h#i#q#l#w#l#r#q#r#s#h#u#d#w#r#u#h#v#f#r#o#r#q#f#k#d#u#d#f#w#h#=#

Sdjh#l#r#i#h#:

Xvlgj#xqlw= Wr#lqg#xqlw/#vlp sq#w|sh#kxh#qxp hulf#ydoxh#ir#z hg#e |#kxh#xqlw##

- % Gr#qrw#hgw#h#vsdfh#qehwz hqg#kxh#qxp ehuf#lqg#kxh#xqlw##
- % \rx#p d|#hgw#h#kxh#p xoisdfdwrg#rshudwru#ehwz hqg#kxh#qxp ehuf#lqg#kxh#xqlw/#vlp#z h#qj#ir#kxh#dqj#h#kxh#d#leryh1##
- % Orrm#kxh#ir#h#Erp sdwh#d#wlgj#r#i#yld#lede#xqlw#lqg#kxh#l#surshu#irp dw-##P dwk#de2Xq#lw#exwrg

Calculations

Qh{w#h#w#ghihg#kxh#htxdwrg#wr#fdcxowh#hulfwrgdq#irufh/#kxh#y#dubedv#ghihg#deryh1##P dwk.fdg#z l#p dnh#vxuh#d#kxh#xqlw#eh#lqj#kxvng#dun#q#p hqvlrqd# #Erp sdwed#lqg#fruhfw#lqg#z l#surygh#kxh#dqvz hu#z lk#kxh#fruhfw#xqlw#lq#d#vlp sdilng#irup 1##Lw#z l#dor#surygh#kxh#dqvz hu#d#ffrug#lqj#wr#kxh#xqlw#v|whp #ir#k#l#z runvkh#w#z k#l#k#l#kxh#VI#v|whp 1##Iru#k#l#fdcxowrg/#xuh#dqvz hu#z l#eh#surygh#z lk#xqlw#r#i#Q#hz wrqv#ehfdxvh#Q#hz wrqv#dun#kxh#ghidxw#e#dvh#xqlw#ir#kxh#q#p hqvlrq#r#i#irufh#q#kxh#VI#v|whp 1##

$$F := \frac{m \cdot v_o^2}{2 \cdot d} - m \cdot g \cdot \sin(\theta)$$

Iq#k#l#htxdwrg#ir#irufh/#grw#h#kdw#%#z dv#qrw#ghihg#deryh#z lk#kxh#kxh#y#dubedv#ghihg#wrgv1##%#v#d#ex#l#lq#Erqwdq#lq#P dwk.fdg#ir#judy#dwrgd#d#ffhdudwrg/#r#l#v#qrw#q#h#vdu|#r#ghihg#l#

Mxw#ir#f#d#l#fdwrg/#z h#q#lvs#l|#kxh#ydoxh#r#i#kxh#l#q#xw#y#dubedv#r#kdw#z h#ngrz #krz #z h#duylh#d#w#kxh#fdcxowg#dqvz hu#ir#irufh1##L#z h#p dnh#dq|#k#dqj#hv#wr#kxh#v#h#q#xw#lq#kxh#l#ghihg#wrgv#deryh#r#q#sdjh#z#z h#fdqqr#w#p dnh#fk#dqj#hv#eh#z #v#eh#z#z h#dun#v#p sq#q#lvs#l/#lqj#kxh#wr#ug#ydoxh#/#kxh#q#k#rv#h#q#z #ydoxh#z l#eh#xsgd#wg#lq#kxh#g#lvs#l|#h#ydoxh#eh#z #dqg#z l#dor#eh#kxvng#lq#kxh#fdcxowrg#ir#irufh#d#ffrug#lqj#wr#kxh#ir#p x#l#krz#q#deryh1##P dwk.fdg#xew#wxvh#wkxh#wr#ug#ydoxh#ir#h#dfk#r#i#kxh#y#dubedv#lq#w#kxh#htxdwrg#lqg#surygh#v#kxh#fdcxowg#h#v#x#z lk#l#w#xqlw#r#q#kxh#l#j#k#w#k#dqg#v#gh#r#i#kxh#htxd#v#l#j#q1

$$m = 4.5 \text{ kg} \quad v_o = 5.2 \frac{\text{m}}{\text{s}} \quad d = 1.5 \text{ m} \quad \theta = 32 \text{ deg} \quad g = 9.807 \frac{\text{m}}{\text{s}^2}$$

$$F = 17.175 \text{ N} \quad F = 3.861 \text{ lbf} \quad \text{g#lvs#l|#kxh#dqvz hu#lq#xqlw#r#i#e#i}$$

Y#z#lqj#h#v#x#w= Wr#y#lz #qxp hulf#d#h#v#x#w/#w|sh#kxh#y#dubedv#q#p h#ir#z hg#l#h#fw#e|#kxh#h#j#x#l#htxd#v#l#j#q# #Gr#qrw#v#h#kxh#ghihg#wrg#r#shudwru#e# #w#y#lz #h#v#x#w#h#kxh#ghihg#wrg#r#shudwru#v#v#x#v#g#r#q# #ir#ghihg#lqj#k#l#j#v#r#u#p dnlqj#d#w#l#j#q#p hqwl#

Frqy#h#w#l#qj#xqlw#r#q#h#v#x#w= Qxp hulf#d#h#v#x#w#dun#k#w#p dw#fd#l#q#lvs#l|#h#kxv#l#qj#v#p sdilng#xqlw#ir#kxh#j#l#y#h#q#xqlw#v|whp 1##

% W r#fkdqj h#xq l#w#r#g#k h#h v#xow/#g h#d#w h#k h#xq l#w#r# i#Q h z w r#q v#f#g#k h#d#q v z h u/#d#g#g#h#s#o#f#h#l#w#z l#w#k h#g#h v#l#h#g#xq l#w#r#l#g#k l#w#f#d#v#h/#z h#h#s#o#f#h#l#w#z l#w#k h#xq l#w#r# i#e i#P d w k . f d g # z l #k h #q #s h u i r p #k h #f r g y h u v l r q #d q g #s u r y l g h #k h #d q v z h u #f#g#xq l#w#r# i#e i l

Fkdqj lqj #y#d#u#b#e#d#h#g#s#w#z = Z k h#g#d#y#d#u#b#e#d#h#y#d#o#h#l#w#f#k#d#q#j#h#g/#k#d#w#f#k#d#q#j#h#z l#w#s#u#r#s#d#j#d#w#h#i#r#u#z d#g#d#g#g#k#s#g#d#w#h#y#h#u| w#k#l#g#k#d#w#g#h#s#g#g#v#r#g#l#w#h#i#l#i#f#k#d#q#j#h#v#h#d#h#p#d#g#h#r#p#d#v#h#f#g#l#w#d#y#h#o#r#f#l#/#d#q#j#h#/#r#u#g#l#w#d#q#f#h#/#r#u#d#o#r#i#k#h#d#e#r#y#h#/#k#r#v#h#f#k#d#q#j#h#v#z l#w#d#w#r#p#d#w#f#d#o#j#e#h#s#u#r#f#h#v#h#g#d#g#g#k#h#q#x#p#h#u#l#f#d#h#v#x#o#w#h#i#r#u#h#i#r#u#f#h#z l#w#e#h#k#s#g#d#w#g#j#

Q r z /#h#w#z u#h#k#h#h#{s#u#h#v#l#r#q#w#r#f#d#f#x#o#l#w#h#i#r#u#f#h#h#q#d#l#w#d#j#k#w#j#g#l#i#h#u#h#g#w#z#d|#l#w#h#w#z u#h#k#h#h#t#x#d#w#i#r#q#h#i#r#u#f#h#h#d#v#d#l#i#x#q#f#w#i#r#q#r#i#k#h#p#d#v#r#i#k#h#e#o#r#f#n#l#i#h#

$$F(m) := \frac{m \cdot v_o^2}{2 \cdot d} - m \cdot g \cdot \sin(\theta)$$

X v h#k#h#i#x#q#f#w#i#r#q#g#h#i#q#l#w#r#g#d#e#r#y#h#r#f#d#f#x#o#l#w#h#i#r#u#f#h#h#{h#u#h#g#r#g#y#d#u#l#r#x#v#e#o#r#f#n#v#r#i#g#l#i#h#u#h#g#w#p#d#v#h#v#l#w#h#u#k#d#g#f#k#d#q#j#l#g#k#h#y#d#u#b#e#d#h#p#d#v#h#e#r#y#h#p#x#o#l#w#s#d#h#p#h#v#z#h#f#d#q#f#u#d#w#h#d#h#h#f#w#r#u#r#v#w#r#h#d#f#r#o#h#f#w#i#r#q#r#i#l#g#s#w#h#i#r#u#p#d#v#l#z#h#z l#w#f#u#d#w#h#d#l#7#{4#h#f#w#r#u#f#d#o#h#g#p#d#v#h#d#g#g#z#h#z l#w#d#v#l#j#q#x#q#l#w#r#i#h#l#r#j#u#p#v#w#r#k#h#h#g#w#l#h#h#f#w#r#u#l#w#k#h#q#z#h#z l#w#x#v#h#x#u#i#x#q#f#w#i#r#q#l#w#r#f#d#f#x#o#l#w#h#i#r#u#f#h#h#k#v#l#j#k#h#p#d#v#h#f#w#r#u#d#v#d#q#l#g#s#w#h#r#k#h#i#x#q#f#w#i#r#q#l

$$mass := \begin{bmatrix} 3.3 \\ 4.8 \\ 5.6 \\ 9.1 \end{bmatrix} \cdot kg \quad F(mass) = \begin{bmatrix} 12.595 \\ 18.32 \\ 21.373 \\ 34.731 \end{bmatrix} N$$

h y d o x d w h #k h #i x q f w i r q #k v l q j #k h #
q h z #g h i l q l w i r q #i r u #k h #y d u b e d #
p d v #

F#u#d#w#g#j#h#f#w#r#u#r# = W k h u h #d#h #h#y#h#u#d#z#d#|v#w#r#f#u#d#w#h#d#h#f#w#r#u#r#i#l#g#s#w#h#i#l#g#k#l#w#h#{d#p#s#d#h#z#h#f#u#d#w#g#k#h#h#f#w#r#u#p#d#q#x#d#o#j#P#d#w#l#f#h#v#d#g#g#W#d#e#d#v#h#d#e#l#g#v#h#u#P#d#w#l#{2V}h#d#l#p#d#w#l#{r#u#h#f#w#r#u#k#h#q#h#l#w#g#k#h#e#o#q#n#v#h#p#s#w|#j#u#d|#e#r#{h#v#

D#h#f#w#r#u#r#p#d#w#l#{f#d#q#d#o#r#e#h#f#u#d#w#g#e#| =

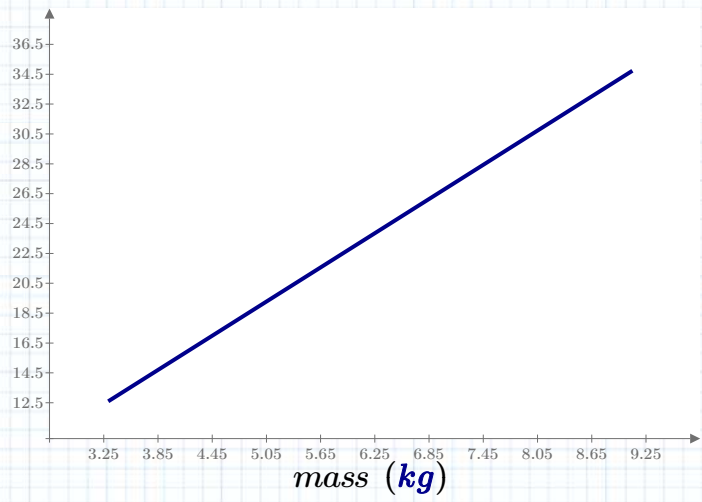
% f r s | 2 s d w h #i#r#p# #l#{f#h#q#F#V#Y#/#h#{w
% p s r w i g j #g#d#w#d#i#r#p# #l#{f#h#o
% l i h #L#R# #i#x#q#f#w#i#r#q#v#x#f#k#d#v#J#H#D#G#H# [F#H#O#r#u#J#H#D#G#I#O#H

Uhgihlqj#yduledv= Z khq#yduledv#uh#hghilqhg/#lv#q#k#lv#dvh#iru#k#h#yduledv#p dvv/# dwk.fdg#lcz d |v#kvh#k#dv#ghilqj#r r#k#h#yduledv#
iru#ddfxolwrv#jrlqj#iruz dugl

Uhshdw#k#h#ddfxolwrv#deryh#wr#ghwhup lq#k#h#irufh#dfwqj#ksrq#e#r#fv#r#i#y#dulr#xv#p dvvhv/#exw#k#l#w#p h/#h#w#d#w#l#j#q#k#h#
uhvow#y#h#f#w#r#i#u#h#v#ow,#w#d#y#duledv#ddong#irufhv#Z h#z l#k#v#h#k#h#v#p h#q#s#w#p dvv1

$$forces := F(mass) = \begin{bmatrix} 12.595 \\ 18.32 \\ 21.373 \\ 34.731 \end{bmatrix} N \quad forces = \begin{bmatrix} 2.831 \\ 4.118 \\ 4.805 \\ 7.808 \end{bmatrix} lbf$$

I lqda/ #h#w#s#w#k#h#h#v#ow#x#v#l#j#d#5#G#s#w#R#q#k#h#(Od{ lv/#z h#s#w#k#h#q#s#w#iru#p dvv +w#w#h#g#l#q#k#h#y#duledv#p dvv
z k lfk#lv#d#y#h#f#w#r#i#u#h#v#ow,#w#d#y#duledv#ddong#irufhv#Z h#z l#k#v#h#k#h#v#p h#q#s#w#p dvv1



Resources

Wk.l#z runvkhhw#fryhuw#edvlf#subqf#sdv#r#i#ghilq#bqj#y#dubedv/#ghilq#bqj#ixqfw#rqv/#xv#bqj#xq#lw/#z run#bqj#z wk#y#hfw#rw/#dgg#
fhdw#qj#5G#saw#iru#kh#sxusrvh#r#i#sury#b#qj#v#p h#j#x#gdq#f#r#q#j#hw#bqj#w#du#wg#z wk#P dwk.fdg1##Hdfk#r#i#k#h#v#h#r#s#l#v#f#d#q#
eh#h#{s#r#u#g#q#i#x#w#k#u#h#s#w#k#d#g#g#h#w#l#b##P dwk.fdg#f#r#q#w#l#q#d#g#d#g#y#d#g#f#h#g#p dwk#h#q#j#l#h#w#k#d#w#f#d#g#e#h#h#{w#h#g#g#h#i#d#e#h#|#r#g#g#
z#k#d#w#k#d#v#e#h#h#g#f#r#y#h#u#g#h#g#w#k#l#z runvkhhw/#q#f#o#g#l#q#j#f#d#s#d#e#l#w#h#w#x#f#k#d#v#F#d#f#x#o#v/#G#l#i#h#u#q#w#l#d#H#t#x#d#w#r#q#v/#G#d#w#D#q#d#v#l#/#
V#r#y#b#j#/#S#u#r#j#u#p#p#l#q#j#/#d#g#g#V#|#p#e#r#d#f#v#l##W#r#f#r#q#w#l#q#x#h#h#d#u#l#q#j#p#r#u#h#d#e#r#x#w#P dwk.fdg/#s#d#v#h#h#i#h#u#w#r#w#k#h#v#h#h#v#r#x#u#f#h#v#=#

- ⌘ Getting Started tab/Tutorial button 0#p l#j#w#r#u#d#w#r#q#y#d#u#l#r#x#v#w#r#s#l#v#f#q#f#o#g#l#q#j#w#k#h#w#r#s#l#v#f#r#y#h#u#g#k#h#h
- ⌘ Getting Started tab/Engineering Resources button 0 h#{d#p#s#d#v#r#i#P dwk.fdg#z runvkhhw#d#f#u#r#v#w#d#o#h#q#j#l#h#h#u#j#g#l#v#l#s#d#q#h#v#
d#g#g#h#g#x#w#u#h#v
- ⌘ Getting Started tab/Community button 0 r#q#d#h#P dwk.fdg#f#r#p#p#x#q#l#w#k#r#w#h#g#e#|#SWF#z#k#h#h#P dwk.fdg#k#v#h#w#f#d#q#g#l#v#f#x#w#
d#g#g#w#k#d#h#h#g#i#r#u#p#d#w#r#q

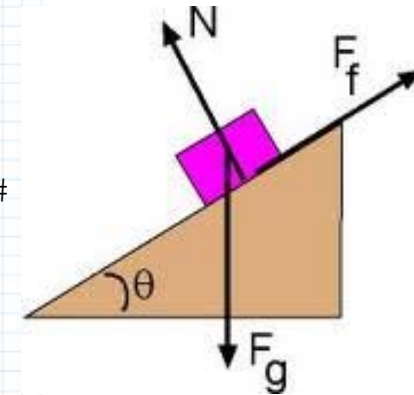
Streamlined Calculations

Wk.h#h#f#w#r#q#w#k#d#w#i#r#o#r#z#v#D#s#s#h#g#g#l#f#r#q#w#l#q#v#d#f#r#g#g#h#q#v#h#g#y#h#u#l#r#q#r#i#w#k#h#s#k#|#v#l#v#s#u#r#e#d#p#k#v#h#g#h#g#w#k#l#z runvkhhw/#r#w#k#d#w#
f#k#d#q#j#h#v#w#r#f#d#f#x#o#w#h#h#v#x#o#w#f#d#q#e#h#h#h#g#p#r#u#h#d#v#l#z#k#h#q#f#k#d#q#j#h#v#d#u#h#p#d#g#h#w#r#h#g#s#w#y#d#u#b#e#d#v#l##R#q#h#r#i#w#k#h#p#r#w#
f#r#p#s#h#o#j#h#h#q#h#i#w#r#i#P dwk.fdg#l#v#l#w#d#e#l#w#r#f#r#p#e#l#h#p#d#w#k#h#p#d#w#f#d#d#f#r#q#w#h#q#w#z#w#k#g#r#f#x#p#h#q#w#d#w#r#q#l#q#w#d#f#r#p#s#u#h#k#h#q#v#l#h#
g#r#f#x#p#h#q#w#k#r#z#h#y#h#u#/#q#w#k#h#D#s#s#h#g#g#l#f#k#d#w#i#r#o#r#z#v#z#h#z#l#w#x#s#s#u#h#v#w#d#o#r#i#w#k#h#g#l#v#f#x#w#l#r#q#l#q#f#o#g#h#g#d#e#r#y#h#r#u#w#k#h#s#x#u#r#v#h#
r#i#y#l#z#l#q#j#w#k#h#h#g#s#w#/#h#t#x#d#w#r#q#v#f#d#f#x#o#w#h#h#v#x#o#w#f#d#g#g#s#r#w#z#w#k#l#q#d#f#r#g#g#h#q#v#h#g#i#r#u#p#d#w#l

Appendix

Problem

Vxssrvh#z h#kdyh#d#earfn#r#i#p dw#p #kdw#v#llng#ks#dq#qfcdqhg#dp s1##
Wkh#earfn#wdyhov#d#gjwdqfn#r#i#18#p hwhuv#ks#kh#dp s/#frp hv#p rp hqwduj#wr#khwv#dgg#
wkhq#v#dghv#edfn#grz q#wr#kh#erwrcp #r#i#kh#dp s1##
Fdxolw#kh#i#ul#wrgd#r#ufh#d#wqj#s#rg#kh#earfn#v#w#v#p ry#bj#s#kh#dp s1



Variables

$$m := 4.5 \text{ kg}$$

$$v_o := 5.2 \frac{\text{m}}{\text{s}}$$

$$\theta := 32 \cdot \text{deg}$$

$$d := 1.5 \text{ m}$$

Calculations

$$F := \frac{m \cdot v_o^2}{2 \cdot d} - m \cdot g \cdot \sin(\theta)$$

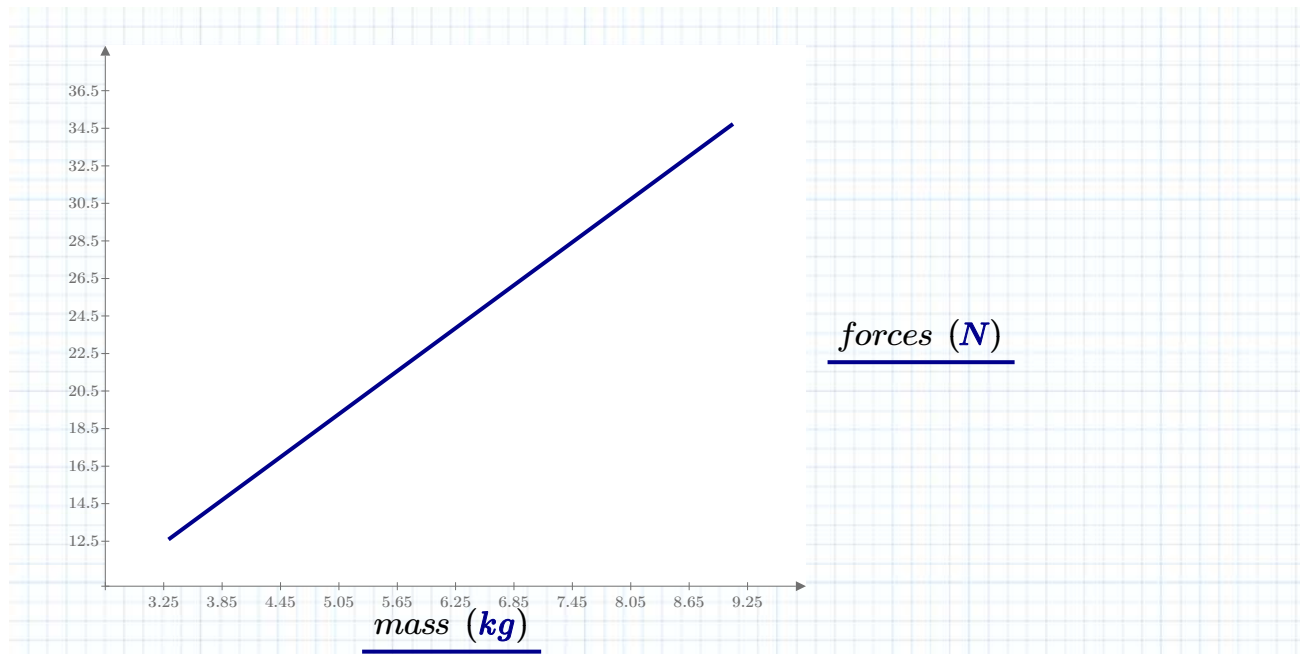
$$F = 17.175 \text{ N}$$

$$F = 3.861 \text{ lbf}$$

$$F(m) := \frac{m \cdot v_o^2}{2 \cdot d} - m \cdot g \cdot \sin(\theta) \quad \text{htxdwlrq\#iru\#irufh\#dv\#d\#ixqfwlrq\#r#i#p dvv}$$

$$\text{mass} := \begin{bmatrix} 3.3 \\ 4.8 \\ 5.6 \\ 9.1 \end{bmatrix} \cdot \text{kg}$$

$$\text{forces} := F(\text{mass}) = \begin{bmatrix} 12.595 \\ 18.32 \\ 21.373 \\ 34.731 \end{bmatrix} \text{ N}$$



Thank you for your interest in PTC Mathcad!

Reference

Wkh#h{dp sd#suredp #xvng#q#k#l#z runvkhhw#l#wdnhq#iurp #kh#i#orz lqj #sxedfdwlrq=

Ixqgdq hqwdw#ri#Sk |vlfv/#Wk.lq#Hglwlrq#H{whqghg

Gdylg#Kdodgd|# #Urehw#Jhvq.lfn

Frs |uljkw#1<:7/4<;4/#lqg#1<;#e|#Mrkq#Z lh|# #Vrqv/#lqf1

Sdjh#:#ri#:

