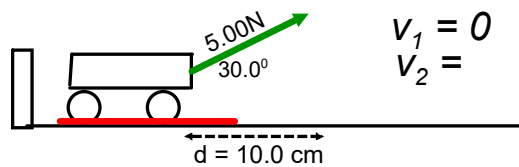


A 525 g cart is pulled with a 5.00 N force directed at 30° above the horizontal

1) bare cart

event:



$m_c = 525 \text{ g}$
 $\mu = .400$

1) bare cart

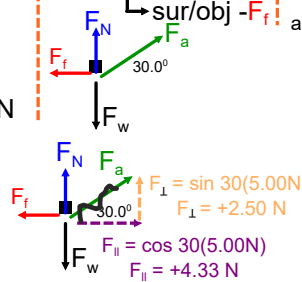
event: accelerating cart by a 5.00 N force at 30.0° from horizontal

data
 $m_c = 525 \text{ g}$
 $\rightarrow .525 \text{ kg}$
 $F_w = -5.15 \text{ N}$
 $v_1 = 0$
 $v_2 = ?$
 $d = 10.0 \text{ cm}$
 $\rightarrow .100 \text{ m}$
 $F_a = 5.00 \text{ N at } 30.0^\circ$

questions about event:

PM - X
 TM - accel
 obj - cart

env. → earth - F_w
 ↳ surf. - F_N
 ↳ rope - F_a
 ↳ sur/obj - F_f



"T"chart

	⊥
TM - accel	TM - rest
2nd - $\Sigma F = ma$	1st - $\Sigma F = 0$
$F_{ } + F_f = ma$	$F_w + F_N + F_f = 0$
$a = F_{ } + F_f/m$	$F_N = -(F_w) - (F_f)$
	$F_N = -(-5.15\text{N}) - (2.50\text{N})$
	$F_N = 2.65 \text{ N}$
	$a = \frac{4.33\text{N} + (-1.06\text{N})}{.525 \text{ kg}}$
	$a = 6.23 \text{ m/s}^2$

$\mu = F_f/F_N$
 $F_f = \mu F_N$
 $F_f = .400(2.65 \text{ N})$
 $F_f = -1.06\text{N}$

$v_2^2 = v_1^2 + 2ad$
 $v_2 = \sqrt{2(6.23 \text{ m/s}^2)(.100 \text{ m})}$
 $v_2 = 1.12 \text{ m/s}$