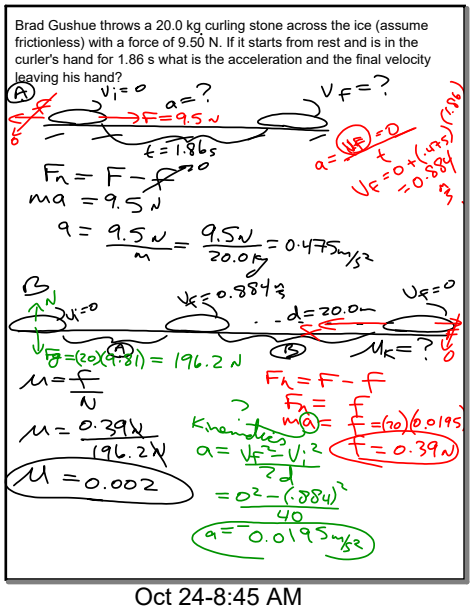
Brad Gushue throws a 20.0 kg curling stone across the ice (assume frictionless) with a force of 9.50 N. If it starts from rest and is in the curler's hand for 1.86 s what is the acceleration and the final velocity leaving his hand?
A
$v_i = 0$
$a = ?$
$v_f = ?$
$F = 9.5\ N$
$t = 1.86\ s$
$F_n = F - f$
$ma = 9.5\ N$
$a = \frac{9.5\ N}{m} = \frac{9.5\ N}{20.0\ kg} = 0.475\ m/s^2$
$a = \frac{v_f - v_i}{t}$
$v_f = 0 + (.475)(1.86)$
$= 0.884$
B
$v_i = 0.884$
$v_f = 0$
$d = 20.0\ m$
$\mu_k = ?$
$F_N = mg = (20)(9.81) = 196.2\ N$
$\mu = \frac{f}{N}$
$\mu = \frac{0.39\ N}{196.2\ N}$
$\mu = 0.002$
$F_n = F - f$
$ma = F - f$
$F = (20)(0.0195)$
$F = 0.39\ N$
Kinematics
$a = \frac{v_f^2 - v_i^2}{2d}$
$= \frac{0^2 - (.884)^2}{40}$
$a = -0.0195\ m/s^2$

Oct 24-8:45 AM