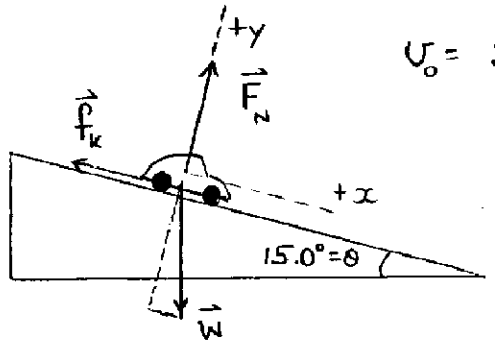
C2.




$v_o = 20.0\ m/s$

For $x$ along hill and $y \perp$ hill, $\Sigma F_y = 0$

so $F_N - W_y = 0$

$F_N = W_y = mg\cos\theta$

$\mu_k = 0.650$

Method: determine accel'n from Newton II and use kinematics to obtain $x$.

$\Sigma F_x = ma$

$W_x - f_k = ma \Rightarrow mg\sin\theta - \mu_k F_N = ma$

$mg\sin\theta - \mu_k mg\cos\theta = ma$

$a = g(\sin\theta - \mu_k\cos\theta) = 9.80\ m/s^2(\sin 15.0° - (0.650)\cos 15.0°)$

$a = -3.62\ m/s^2$

Now $v^2 = v_o^2 + 2ax$

so $x = \dfrac{v^2 - v_o^2}{2a} = \dfrac{0 - (20.0\ m/s)^2}{2(-3.62\ m/s^2)} = 55.2\ m$

Note that this problem could also be solved using $E_o + W_{nc} = E_f$.