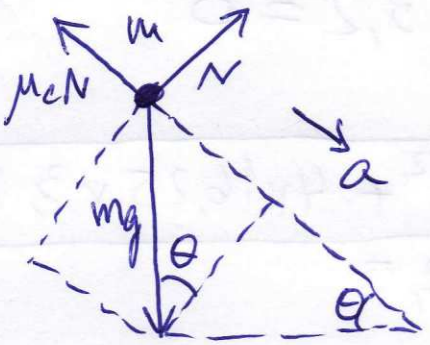
② (a)



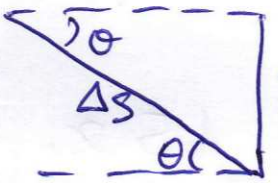
$N = mg\cos\theta$

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

$a = g(\sin\theta - \mu_c\cos\theta) = 10(0,6 - 0,375\times 0,8)$

$a = \underline{3,0\ m/s^2}$

(b) $v = \sqrt{2a\Delta s}$



$\Delta s = \frac{y_0}{\sin\theta}$

$v = \sqrt{2a\frac{y_0}{\sin\theta}} = \sqrt{\frac{2\times 3\times 1,6}{0,6}} = \sqrt{16} = \underline{4\ m/s}$

(c) $E_0 = mgy_0 = 0,4\times 10\times 1,6 = 6,4\ J$

$E_1 = \frac{1}{2}kx_1^2 + |W_{at_1}|$

$|W_{at_1}| = \mu_c mg\cos\theta\frac{y_0}{\sin\theta} + \mu_c mg x_1$

$|W_{at_1}| = \frac{0,375\times 0,4\times 10\times 0,8\times 1,6}{0,6} + 0,375\times 0,4\times 10\, x_1$

$|W_{at_1}| = 3,2 + 1,5x_1 \qquad E_1 = 16,25x_1^2 + 1,5x_1 + 3,2 = 6,4$

$\Rightarrow 16,25x_1^2 + 1,5x_1 - 3,2 = 0$

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