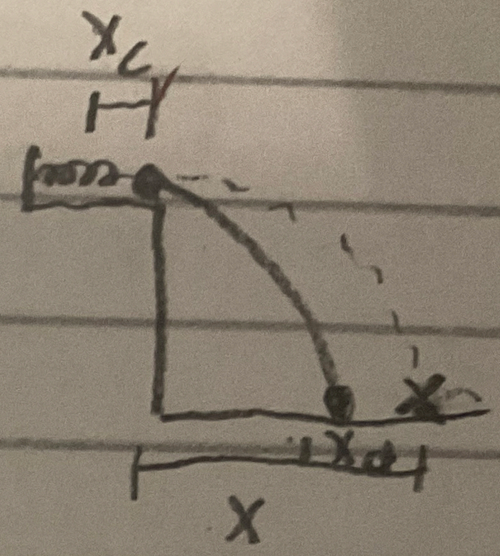
9 $x = 2.2$ $x_c = .011$ $x_d = .27$



$x_c = .011$ $x_+ = 1.93$

$Fd = \frac{1}{2}mv^2$

$\frac{x}{.011} = \frac{2.2}{1.93}$ $\frac{2.2}{1.93} \cdot .011 = x$ $x = .01259$ m

$x = 1.254$ cm

10 $R = 0.2$ m $2m = 2$ kg $h = 3$ $I = \frac{1}{2}MR^2$

a) a?

$\frac{1}{2}mv^2 + \frac{1}{4}Iw^2$

b) $\frac{1}{2}Iw^2$ $v = wr$

$mgh = \frac{1}{4}RE\,v^2 + KE$ $\frac{v}{r^2} = w$