# Momentum and potential energy



**Question**

A car is traveling on an elevated road with a height of $6m$. If the car's momentum $p = 22,500 \ kgm/s$ and the kinetic energy of the car is $T = 168,750J$ find the potential energy , $V$, of the car. Assume $g = 10 \ m/s^2$

*Using known expressions*:
P=mv
$T = \frac{1}{2}mv^2 \ V = mgh$

*Given*:
$T = 168,750J$
p=22,500 kgm/s
h=6m

*Solution*:
$T = \frac{p^2}{2m}$
$168,750 = \frac{22,500^2}{2m}$
$m = 1500kg$
$V = 1500 * 10 * 6 = 90KJ$