Review

p208| 23, 27, 29, 30, 32-35

p210| 1-8

p212| 29, 30, 32, 33, 36

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p208|33

I- falling

$m = 55.0\,kg$

$\Delta d = -1.5\,m$

$V_1 = 0$

$a = -9.81\,m/s^2$

$V_2 = ??$

$V_2^2 = V_1^2 + 2a\Delta d$

$V_2^2 = 0^2 + 2(-9.81\,m/s^2)(-1.5\,m)$

$V_2 = \pm 5.4\,m/s$

use: $V_2 = -5.4\,m/s$

$5.4\,m/s$ [down]

II- stopping (in contact with floor)

$V_1 = -5.4\,m/s$

$V_2 = 0$

$a = ?$

$\Delta t = 8.00 \times 10^{-3}$

$m = 55.0\,kg$

$F_{floor} = ?$

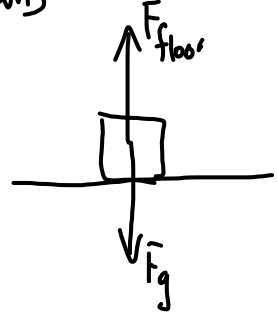
$a = \frac{\Delta V}{\Delta t}$

$a = \frac{V_2 - V_1}{\Delta t}$

$a = \frac{0 - (-5.4\,m/s)}{8.00 \times 10^{-3}\,s}$

$a = +678\,m/s^2$

+



$\vec{F}_{net} = m\vec{a}$

$F_{floor} - F_g = ma$

$F_{floor} = ma + mg$

p208/35

$F = ma$

$a = \frac{F}{m}$

new: $a' = \frac{5F}{2m}$ ← a

$a' = \frac{5}{2}a$

$d = \cancel{v_i t}^{0} + \frac{1}{2}at^2$

$d = \frac{1}{2}at^2$

new $d' = \frac{1}{2}\left(\frac{5}{2}a\right)t^2$

$d' = \frac{5}{2}\left(\frac{1}{2}at^2\right)$ ← d

$d' = \frac{5}{2}d$