38.) $m = 1\,kg$ $\quad v = .5\ m/s$ $\qquad m = 1\,kg$ $\quad v = 0\ m/s$

$$P_{before} = P_{after}$$

$$m_1 v_1 + m_2 v_2 = m_1' v_1' + m_2' v_2'$$

$$(1\,kg)(.5\ m/s) + (1\,kg)(0\ m/s) = (2\,kg)(v_c)$$

$$\frac{.5\ \frac{kg\ m}{s}}{2\,kg} = \frac{2\,kg\,(v')}{2kg}$$

$$v = .25\ m/s$$

39.) $P = \frac{w}{t} = \frac{Fd}{t} = FV$

$P = \frac{Fd}{t}$ $\uparrow \times 2$ $\quad \downarrow \times 2$

ELEVATOR B MOVES TWICE AS FAST $\Rightarrow t \downarrow \times 2$

ELEVATOR B WEIGHS TWICE AS MUCH $\Rightarrow F \uparrow \times 2$

$P \Rightarrow \times 4 \uparrow$

40) $d = ?$

$P = 20.4\ w$

$m = 5\ kg$

$t = 10\ s$

$P = \frac{w}{t} = \frac{Fd}{t} = Fv$

$P = \frac{Fd}{t} \Rightarrow d = \frac{Pt}{F}$

$m = 5\ kg \times 9.81 \frac{m}{s^2}$

$= 49.05\ N$

$d = \frac{(20.4\ w)(10\ s)}{49.05\ N}$

$= 4.159\ m$

---

41) $I = ?$

$3.4 \times 10^{19}\ e$

$t = 60\ s$

$I = \frac{\Delta q}{t}$

convert e to Coulombs

$3.4 \times 10^{19}\ e \times \frac{1\ C}{6.25 \times 10^{18}\ e}$

$= 5.44\ C$

$I = \frac{\Delta q}{t} = \frac{5.44\ C}{60\ s} = .091 \frac{C}{s}$ or A

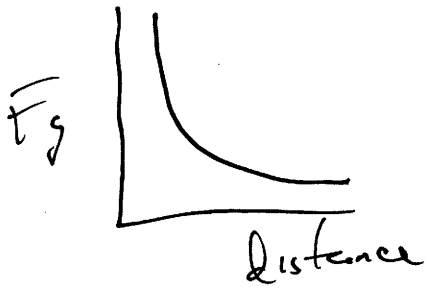
$9.1 \times 10^{-2}\ A$

42) $F_g = \frac{G M_1 M_2}{r^2}$

As Distance increases

$F_g \downarrow$

Since r is squared it is an inverse to the Square relationship



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43) $P = VI = I^2R = \frac{V^2}{r}$

$P \uparrow$ $I \uparrow$ $R \downarrow$

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44) $n = 3$ energy level Hydrogen

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Could drop From Level 3 To Level 2
Level 3 To Level 1
Level 2 to level 1

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45) Choice 2 Both Balls are in Free Fall
The only Force Acting on the Balls is Gravity.

$\Rightarrow$ Both Accelerate at the same rate

$\Rightarrow$ Hit Ground at same time