10/22/07@

A 60 kg man stands on a scale in an elevator which is accelerating at rate, A (upward when A is positive). His weight by the scale is:

a) 60*g N

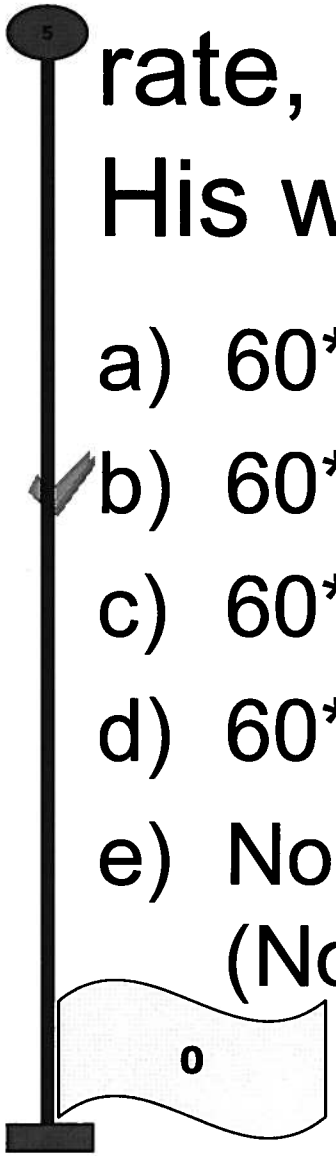
b) 60*(g + A) N

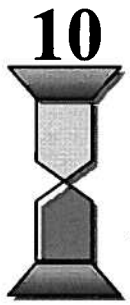
c) 60*(g - A) N

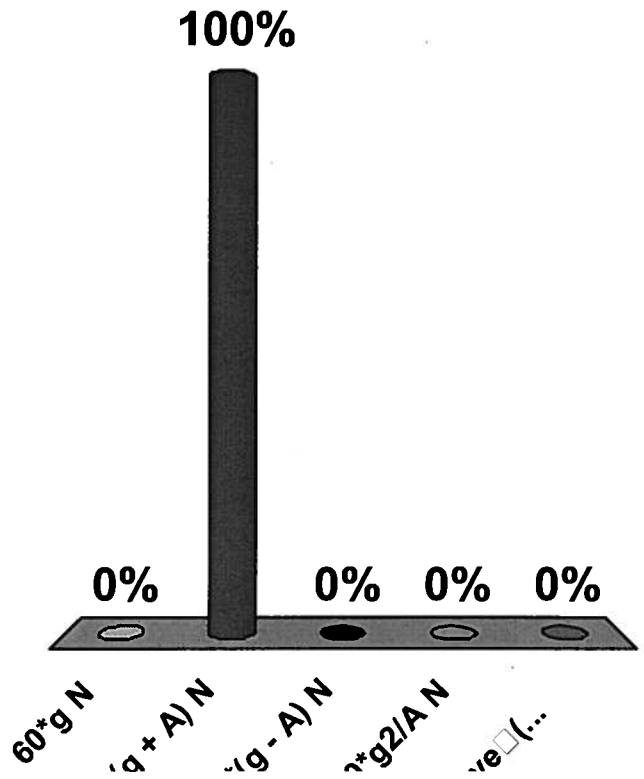
d) 60*g^2/A N

e) None of the above

(Note: g = 9.8m/$s^{2)}$







10/22/07 (b)

The correct answer is (b): W = 60(g+A)

- In an inertial frame, a = A, and NII is:
  $\mathbf{F}_{\mathbf{Physical}} = F_G + F_S = MA = -Mg + W$;
- Then W = M(g+A) =60(g+A), answer (b).

- In Accelerating frame, $a_A = 0$, but need to add $\mathbf{F}_{\mathbf{Pseudo.}} = -MA$ to $\mathbf{F}_{\mathbf{Physical}}$ .Then
  $-MA + W - Mg = Ma_A = 0$,
- So that, again, W = M(g+A), answer (b), again.
- (Note one must always get the same physical results whichever way one does the calculation.)