

7.13

$m = ?$

$w = ?$

$F = 400 \text{ N}$

$v_f - v_o = -4 \text{ m/s}$

$t = 3 \text{ s}$

$v_f = v_i + at$

$v_f - v_i = at$

$a = \frac{v_f - v_i}{t}$

$= \frac{-4}{3} = \boxed{-1.33 \text{ m/s}^2}$

$F = ma$

$-400 = m(-1.33)$

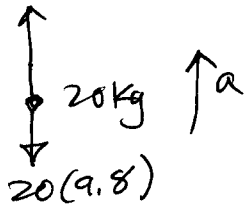
$m = \frac{400}{1.33} = \boxed{300 \text{ kg}}$

$w = mg = (300)(9.8) = \boxed{2,940 \text{ kg}}$

7.17

a)

196 N



$\Sigma F = ma$

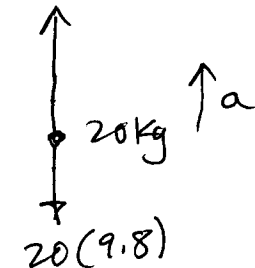
$196 - 20(9.8) = 20a$

$196 - 196 = 20a$

$\boxed{a = 0}$

b)

120 N



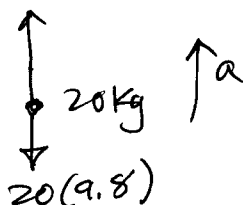
$\Sigma F = ma$

$120 - 20(9.8) = 20a$

$a = 6 - 9.8 = \boxed{-3.8 \text{ m/s}^2}$

c)

260 N



$\Sigma F = ma$

$260 - 20(9.8) = 20a$

$a = 13 - 9.8$

$= \boxed{3.2 \text{ m/s}^2}$