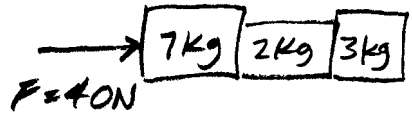
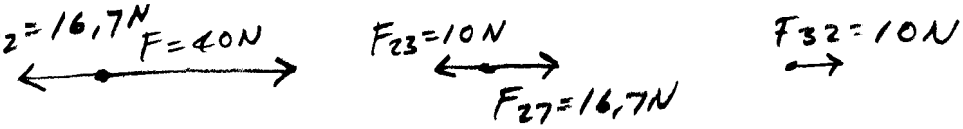
12) Three blocks are lined up touching each other on a frictionless table. A horizontal 40N force pushes the 7kg block. (a) Draw 3 FBDs (b) What is the acceleration of the blocks? (c) What force does the 2kg exert on the 3kg? (d) What net force is exerted on the 2kg



answer:

a)



$\Sigma F = ma$

$a = \frac{\Sigma F}{M}$

$= \frac{40N}{(7+2+3)kg}$

b) $\boxed{a = 3.33 \frac{m}{s^2}}$

$F_{32} = M_3 a$

$= 3kg(3.33 \frac{m}{s^2})$

c) $\boxed{F_{32} = 10N}$

$\Sigma F_2 = M_2 a$

$= 2kg(3.33 \frac{m}{s^2})$

d) $\boxed{\Sigma F_2 = 6.67N}$

$F_{27} = \Sigma F_2 + F_{23}$

$= 6.67N + 10N$

$F_{27} = 16.7N$

$F_{72} = 16.7N$