$m = 20 \ kg$

$a = 5 \ m/s^2$

1) $F = ma =$
$= (20 \ kg)(5 \ \frac{m}{s^2}) =$
$= 100 \ N$

2) Siccome a è costante,
il moto che ne consegue
è UNIFORMEMENTE ACCELERATO

$v = at + \cancel{v_0}$
$\downarrow$
0

$v = at = (5 \ \frac{m}{s^2})(4 \ s) =$
$= 20 \ \frac{m}{s}$

3) $v = at$

$t = \frac{v}{a} = \frac{36 \ \frac{km}{h}}{5 \ \frac{m}{s^2}} = \frac{\frac{36}{3,6} \ \frac{m}{s}}{5 \ \frac{m}{s^2}} = \frac{10 \ \frac{m}{s}}{5 \ \frac{m}{s^2}} = 2 \ s$

25)

$m = 800 \text{ kg}$ $\qquad \Delta t = 10 \text{ s}$

$v_0 = 20 \frac{m}{s}$ $\qquad v_1 = 26 \frac{m}{s}$

$a = \frac{v_1 - v_0}{\Delta t} = \frac{26 - 20}{10} \frac{m}{s^2} = 0,6 \frac{m}{s^2}$

$F = ma = (800 \text{ kg})(0,6 \frac{m}{s^2}) = 480 \text{ N}$

43)
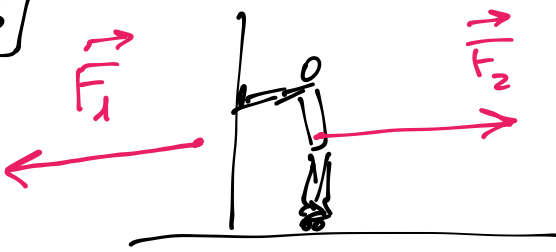
$\vec{F_1}$ = FORZA CON CUI IL RAGAZZO AGISCE SUL MURO
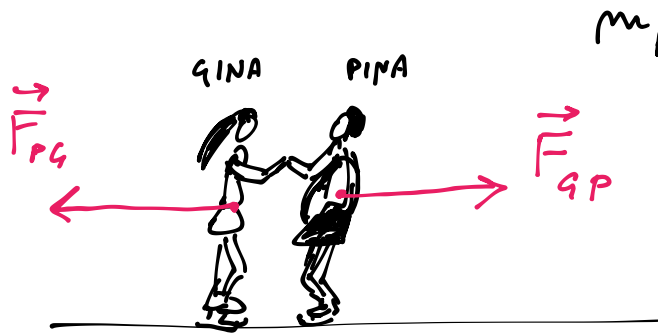
$\vec{F_2}$ = FORZA CON CUI IL MURO SPINGE IL RAGAZZO

$m = 65 \text{ kg}$

$a = 1,6 \dfrac{m}{s^2}$

$$F_1 = (65 \text{ kg})(1,6 \dfrac{m}{s^2}) =$$

$$= F_2 \qquad = 104 \text{ N}$$

44)

GINA   PINA

$\vec{F_{PG}}$ $\vec{F_{GP}}$

$m_{PINA} = 2 m_{GINA}$

$$F_{PG} = F_{GP}$$

$$m_{GINA} \, a_{GINA} = m_{PINA} \, a_{PINA}$$

$$m_{GINA} \, a_{GINA} = 2 m_{GINA} \, a_{PINA}$$

$$a_{GINA} = 2 \, a_{PINA}$$

$$\dfrac{a_{PINA}}{a_{GINA}} = \dfrac{1}{2}$$

$m_1 = 1750 \ kg$ $\qquad$ $m_2 = 600 \ kg$
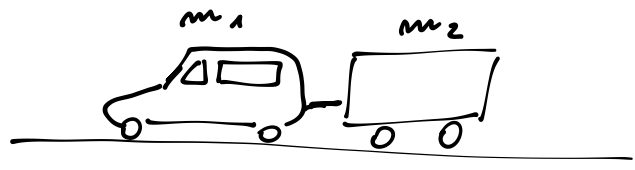
$\alpha = 1,2 \ m/s^2$

$$F_{TOTALE} = (m_1 + m_2) \, \alpha = (1750 \ kg + 600 \ kg)(1,2 \ \tfrac{m}{s^2}) =$$

$$= (2350 \ kg)(1,2 \ \tfrac{m}{s^2}) = 2820 \ N$$

$$F_1 = m_1 \, a = (1750 \ kg)(1,2 \ \tfrac{m}{s^2}) = 2100 \ N$$

AGISCE SULL'AUTO

$$F_2 = m_2 \, \alpha = (600 \ kg)(1,2 \ \tfrac{m}{s^2}) = 720 \ N$$

SUL CARRELLO
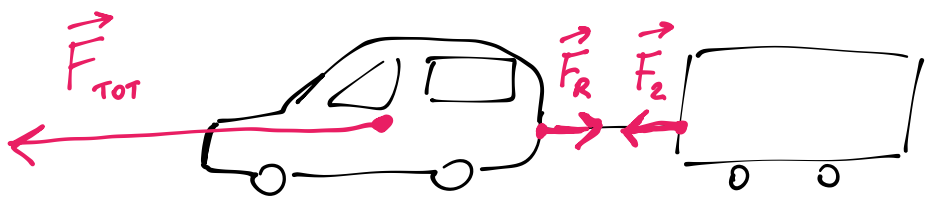
$\vec{F_2} =$ FORZA CON CUI L'AUTO TRAINA IL (AGISCE SUL) CARRELLO

$\vec{F_R} =$ REAZIONE DEL CARRELLO SULL'AUTO

$F_R = F_2$

$$F_1 = F_{TOT} - F_R = 2820 \ N - 720 \ N = 2100 \ N$$

SULL'AUTO