

Problems

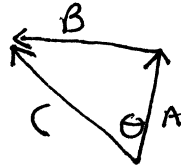
1) $F = ma$ $F = ?$ $v_i = 0$ $v_f = 35 \text{ m/s}$
 $m = 1,100 \text{ kg}$ $a = ?$ $t = 8 \text{ sec}$

$$a = \frac{v_f - v_i}{t} = \frac{35 \text{ m/s}}{8 \text{ s}} = 4.4 \text{ m/s}^2$$

$$F = ma = 1,100 \text{ kg} \cdot 4.4 \text{ m/s}^2 = \boxed{4.8 \times 10^3 \text{ N} = F}$$



$$\vec{C} = \vec{A} + \vec{B}$$



$$C^2 = A^2 + B^2$$

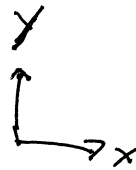
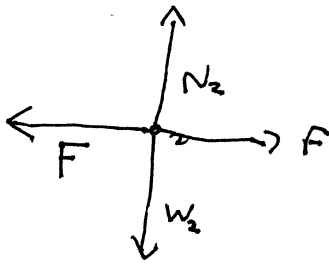
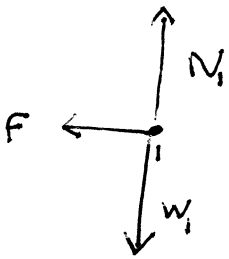
$$= 3 + 1 = 4$$

$$\boxed{|C| = 2}$$

$$\tan \theta = \frac{1}{\sqrt{3}}$$

$$\boxed{\theta = 30^\circ}$$

3) F B D



F is force of 2 on 1

Newton $\sum \vec{F} = m_1 a$

$$\sum \vec{F} = m_2 a$$

x) $-F = -m_1 a$

$$-F + F = -m_2 a$$

- since $F \perp a$
are to left, negative x

y) $N_1 - W_1 = 0$

$$N_2 - W_2 = 0$$

x) $m_1 = m$ $m_2 = 2m$

$$F = m a$$

$$F - F = 2m a \Rightarrow$$

$$F - (m a) = 2m a \quad F = 3m a$$

$$\Rightarrow a = \frac{F}{3m}$$

$$F = m a = m \left(\frac{F}{3m} \right) = \boxed{\frac{F}{3} = F}$$