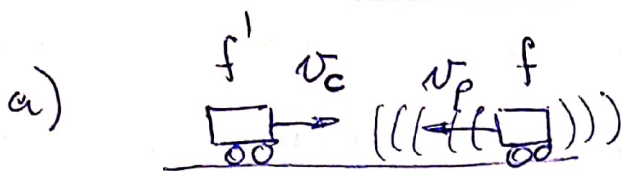# Problema n° 13 . Ondas sonoras

(Observador) $v_c = 25\,m/s$ Conductor
(Emisor) $v_P = 40\,m/s$ Policía

a)

$$f' = f\frac{v \pm v_0}{v \mp v_s}$$

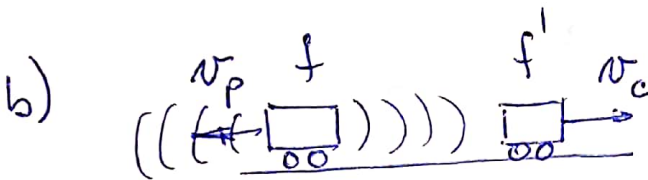$$f' = f\frac{v + v_c}{v - v_p} = 2500\,\frac{343+25}{343-40}$$
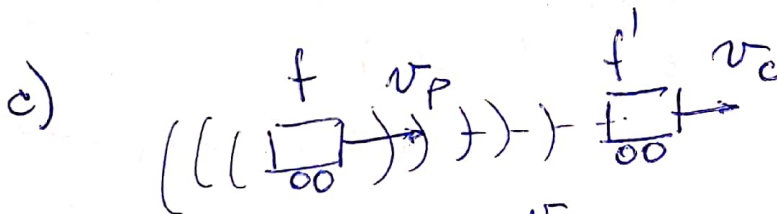
$f = 2500\,Hz$

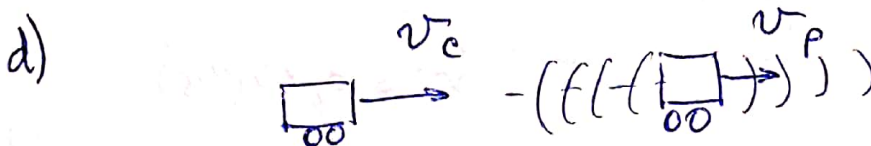v_0 : observador
v_s : emisor
v : sonido.
  $= 343\,m/s$

$$\underline{f' = 3040\,Hz} \quad aumenta$$

b)

$$f' = f\frac{v - v_c}{v + v_p} = 2500\,\frac{343-25}{343+40} = \underline{2080\,Hz}$$
disminuye

c)

$$f' = f\frac{v - v_c}{v - v_p} = 2500\,\frac{343-25}{343-40} = \underline{2620\,Hz}$$
~~disminuye~~ aumenta

d)

$$f' = f\frac{v + v_c}{v + v_p} = 2500\,\frac{343+25}{343+40} = \underline{2.400\,Hz}$$
disminuye