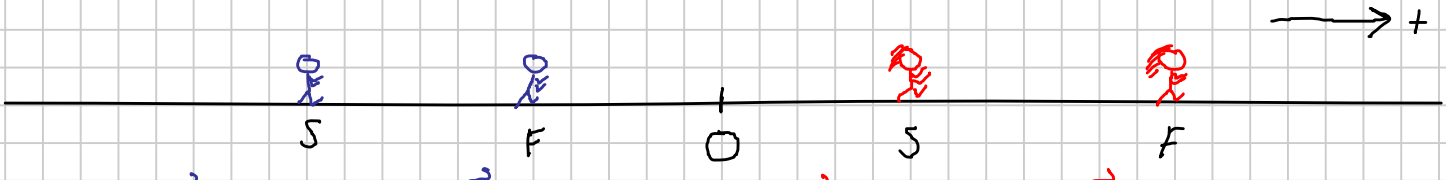
Investigating Distance and Displacement

Note Title 11/03/2011

Situation 1: Same Way

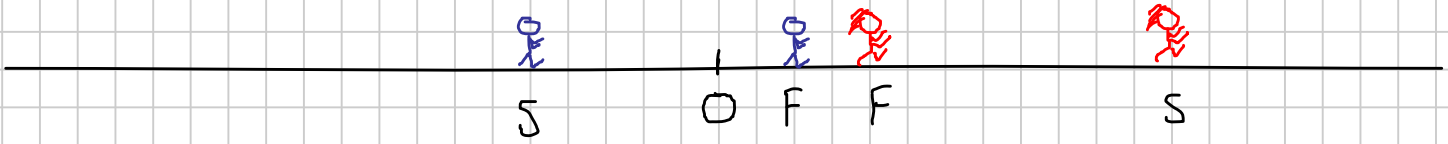
1 square = 10 m



$\vec{x}_i = -110$ $\Delta\vec{d} = 60m$ $\vec{x}_i = 50m$ $\Delta\vec{d} = 70m$

$\vec{x}_f = -50$ $d = 60m$ $\vec{x}_f = 120$ $d = 70m$

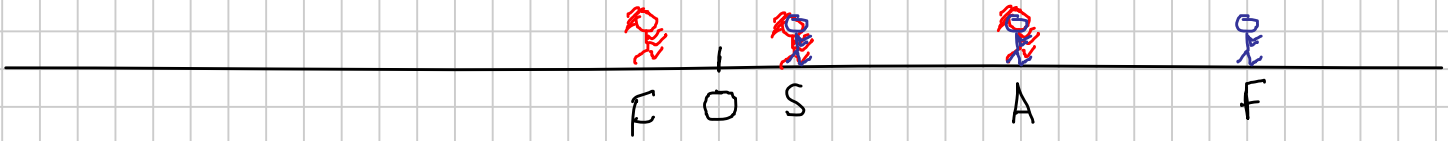
Situation 2: Opposite Ways



$\vec{x}_i = -50m$ $\Delta\vec{d} = +70m$ $\vec{x}_i = 120m$ $\Delta\vec{d} = -80m$

$\vec{x}_f = 20m$ $d = 70m$ $\vec{x}_f = 40m$ $d = 80m$

Situation 3: Stopping along the way but split apart.
start together



$\vec{x}_i = +20m$ $\Delta\vec{d} = +120m$ $\vec{x}_i = +20$ $\Delta\vec{d} = -40m$

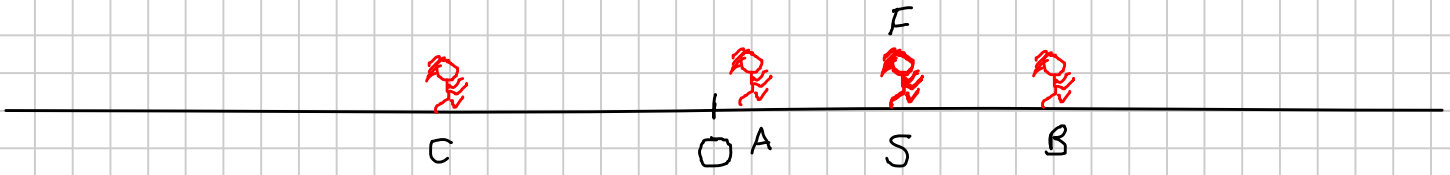
$\vec{x}_f = +140m$ $d = 120m$ $\vec{x}_f = -20$ $d = 160m$

Situation 4: Ping-Pong

$\vec{x}_i = -50$ $\Delta\vec{d} = +50m$

$\vec{x}_f = 0$ $d = 310m$

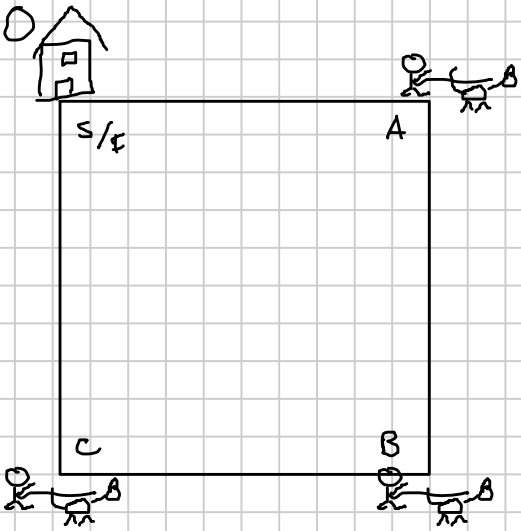
Situation 5: Ping-Pong



$\vec{x}_i = +50$ $\quad \vec{\Delta d} = 0$

$\vec{x}_f = +50$ $\quad d = 400\ m$

Situation 6: Walking the dog around the block. $1s_{\square} = 100\ m$



$\vec{x}_i = 0$ $\quad \vec{\Delta d} = 0$

$\vec{x}_f = 0$ $\quad d = 4000\ m$