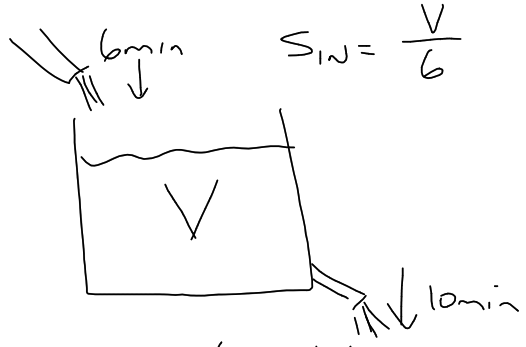
8e)



$S_{IN} = \frac{V}{6}$

$S = \frac{d}{t}$

$S_{OUT} = \frac{V}{10}$

$S_{FILL} = \frac{V}{6} - \frac{V}{10}$

$= \frac{2V}{30}$

$= \frac{V}{15}$

$T = 15\text{min}$

8c)

P: 312 pts in 15 games

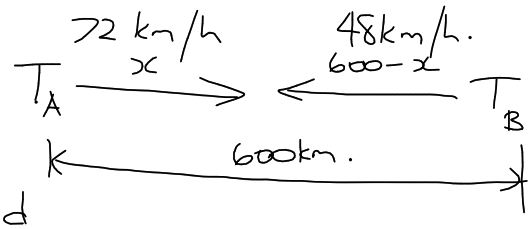
overall average = 20 pts per game in 18 games

total pts = 360

in next 3 games must score = 48 pts

∴ average 16 pts/game

8h)



$t = \frac{d}{s}$

$t_A = \frac{x}{72}$

$t_B = \frac{600-x}{48}$

$t_A = t_B$

$\frac{x}{72} = \frac{600-x}{48}$

$48x = (72)(600) - 72x$

$120x = (72)(600)$

$x = \frac{(72)(600)}{(120)}$

$x = 360$

they will meet after 5 hours

11(a) $\dfrac{x-1}{x-3} = 1 + \dfrac{2}{x-3}$

$1 + \dfrac{2}{x-3} = \dfrac{x-3+2}{x-3}$

$= \dfrac{x-1}{x-3}$

b) $\frac{x-1}{x-3} - \frac{x-3}{x-5} = \frac{x-5}{x-7} - \frac{x-7}{x-9}$

$1 + \frac{2}{x-3} - \left(1 + \frac{2}{x-5}\right) = 1 + \frac{2}{x-7} - \left(1 + \frac{2}{x-9}\right)$

$\frac{1}{x-3} - \frac{1}{x-5} = \frac{1}{x-7} - \frac{1}{x-9}$

$\frac{x-5-(x-3)}{(x-3)(x-5)} =$

$\frac{-2}{(x-3)(x-5)} = \frac{-2}{(x-7)(x-9)}$

$x^2 - 8x + 15 = x^2 - 16x + 63 \qquad x \neq 3, 5, 7, 9$

$8x = 48$

$x = 6$