Jul 9. Sat.

(3)

We only look at 2 moments:

Myron has reached the top and

Fischer has reached top.

The steps shown on the escalator at every moment is constant, denote it as D. Ve: the velocity of the escalator.

When Myron reaches the top:

$d_1 + 25 = D$ ← d_1, d_2: the steps of escalator

when Fischer reaches the top

$d_2 + d_3 = D$

Thus we know the distance the escalator has travelled while Myron stops but Fischer walks is:

$d' = 5$ steps.

Since the time Fischer has continued to walk is the same as the escalator "walks" for the distance d', and

$$V_M : V_F = 3:2,$$

$$d_M : d_F = 3:2 \text{ when } t \text{ is the same.}$$

$$d_F : \frac{2}{3} d_M$$

the actual distance Fischer has walked after Myron has reached the final point is:

$$20 - \frac{2}{3} \cdot 25 = \frac{10}{3} \text{ steps.}$$

The time of the escalator continues to move is the same as that of Fischer has walked after Myron, and their velocities are constant.

The ratio of their total distance will be the same as the ratio of the distance they both move after Myron has stopped.

$$d' : \frac{10}{3} = d_2 : 20$$

$$5 : \frac{10}{3} = d_2 : 20$$

$$15 : 10 = d_2 : 20$$

$$d_2 = 30 \text{ steps}$$

$$D = d_2 + 20 = 50 \text{ steps.}$$