TWO STUDENTS WALK IN THE SAME DIRECTION ALONG A STRAIGHT PATH, ONE AT 0.90 M/SEC & ONE AT 1.9 M/SEC (AVERAGE VELOCITIES)

HOW FAR WOULD THE STUDENTS HAVE TO WALK SO THAT THE FASTER STUDENT ARRIVES 5.5 MIN BEFORE THE SLOWER STUDENT?

LET SUBSCRIPTS f & s REFER TO PARAMETERS OF THE FAST & SLOW STUDENTS RESPECTIVELY

WE KNOW $\Delta X_s = V_s \Delta t_s = \Delta X_f = V_f \Delta t_f$ (THEY GO THE SAME DISTANCE)

$$\Delta t_s = 330 \text{ SEC} + \Delta t_f$$

$$V_s \Delta t_s = V_f \Delta t_f$$

$$V_s(330 + \Delta t_f) = V_f \Delta t_f \qquad \left[\frac{M}{SEC}\right][SEC]$$

$$0.9(330 + \Delta t_f) = (1.9)\Delta t_f \qquad \frac{[M]}{SEC}[SEC]$$

$$297 + 0.9\Delta t_f = 1.9\Delta t_f$$

$$297_{SEC} = \Delta t_f$$

$$\Delta X_f = \Delta X_s = (297 \text{ SEC})(1.9 \text{ M/SEC}) = 564 \text{ METERS}$$