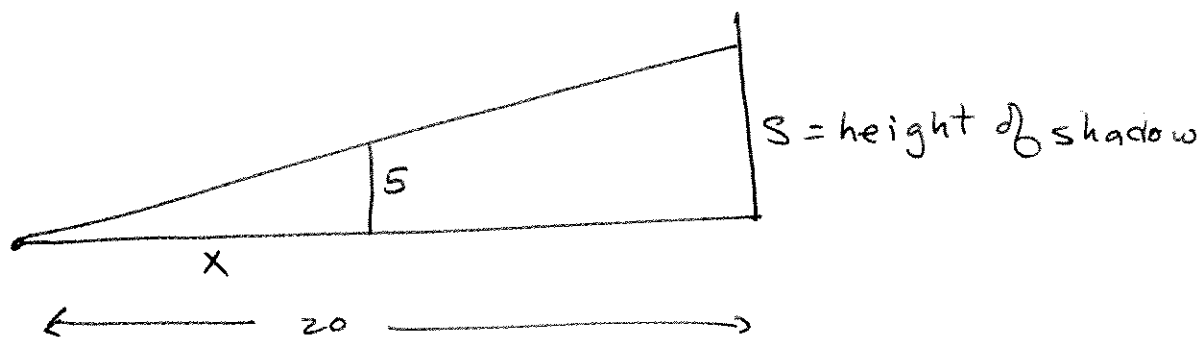


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A spotlight is positioned at ground level 20 ft from a wall. A 5 ft tall person walks toward the wall at 3/4 ft/sec. How fast is the height of the person's shadow on the wall changing when the person is 10 ft from the wall?



$$\frac{S}{20} = \frac{5}{x}$$

$$S = \frac{100}{x}$$

$$\frac{ds}{dt} = -\frac{100}{x^2} \frac{dx}{dt}$$

When  $x=10$  we get

$$\begin{aligned} \frac{ds}{dt} &= -\frac{100}{100} \left( \frac{3}{4} \right) \\ &= -\frac{3}{4} \frac{\text{ft}}{\text{sec}} \end{aligned}$$