

We know that,

$v = u + at$ where $v = \text{final velocity}$, $u = \text{initial velocity}$ $a = \text{acceleration}$ $s = \text{displacement}$

squaring both sides we get:

$$v^2 = u^2 + 2uat + a^2t^2$$

$$v^2 = u^2 + 2a\left(ut + \frac{1}{2}at^2\right)$$

$$v^2 = u^2 + 2as$$

$$0 = u + at$$

$$\sqrt{v^2} = \sqrt{u^2}$$

$$v = \pm u$$

$$s = ut + \frac{1}{2}gt$$

$$0 = ut - \frac{1}{2}gt$$

$$\frac{1}{2}gt = ut$$

$$t = \frac{2u}{g}$$

$$t = \frac{2 \times 40}{10}$$

$$t = 8 \text{ sec}$$