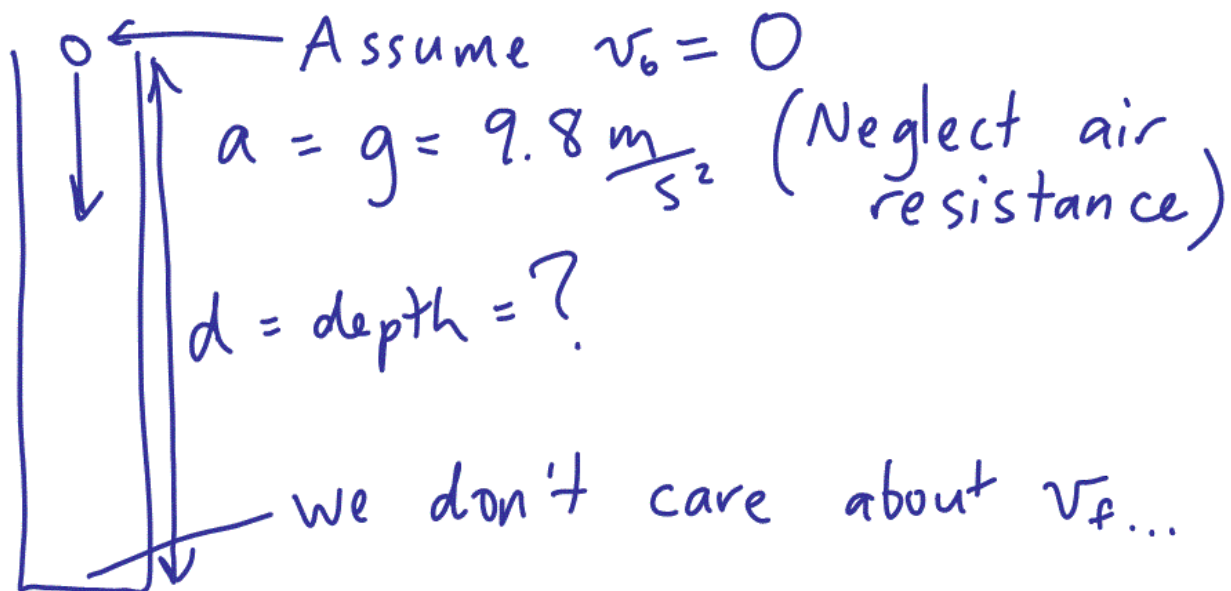


Example: How deep is the well? [warm-up version]

You drop a rock into a well and it takes 2.50 seconds for it to hit the bottom. How deep is the well?



1. $x = x_0 + \left(\frac{v_0 + v}{2}\right)t$ Does not contain a !
(but you know it's constant)

2. $v = v_0 + at$ Does not contain position!

→ 3. $x = x_0 + v_0t + \frac{1}{2}at^2$ Does not contain v_f !

4. $v^2 = v_0^2 + 2a(x - x_0)$ Does not contain t !

Set $d = (x - x_0)$, $a = g$

$$d = \cancel{v_0}t + \frac{1}{2}gt^2$$

$$= 0 + \frac{1}{2}(9.8)(2.5)^2$$

$$d = 30.625 \text{ m}$$

$$d = 30.6 \text{ m}$$