

VII. Discussion Questions

1. Solve equation 1 for a

$$v = v_0 + at \quad \rightarrow \quad a = \frac{v - v_0}{t}$$

2. Solve equation 1 for t

$$v = v_0 + at \quad \rightarrow \quad t = \frac{v - v_0}{a}$$

3. Assuming that
- $v = v_0$
- , show the steps and simplify equation 2 as much as possible.

$$x = \frac{1}{2}(v + v)t \quad \rightarrow \quad x = \frac{1}{2}(2v)t \quad \rightarrow \quad x = vt$$

4. Solve equation 4 for v

$$v^2 = v_0^2 + 2ax \quad \rightarrow \quad v = \sqrt{v_0^2 + 2ax}$$

5. Solve equation 4 for
- v_0

$$v^2 = v_0^2 + 2ax \quad \rightarrow \quad v_0^2 = v^2 - 2ax \quad \rightarrow \quad v_0 = \sqrt{v^2 - 2ax}$$

6. Solve equation 4 for a

$$v^2 = v_0^2 + 2ax \quad \rightarrow \quad 2ax = v^2 - v_0^2 \quad \rightarrow \quad a = \frac{v^2 - v_0^2}{2x}$$

7. Solve equation 4 for x

$$v^2 = v_0^2 + 2ax \quad \rightarrow \quad 2ax = v^2 - v_0^2 \quad \rightarrow \quad x = \frac{v^2 - v_0^2}{2a}$$

8. What would the value for C be if the distance between you was 250 meters instead of 100 meters?

-250 m