Kinematic Equation #2 Proof (Algebra Method)

prove d = Vit + 1/2 a t²

Start with d = (Vave)(t)

$V_{ave} = \frac{V_i + V_F}{2}$

$V_F = V_i + at$

$d = \left(\frac{V_i + V_F}{2}\right)t$

$d = \left(\frac{V_i + V_i + at}{2}\right)t$

$d = \left(\frac{2V_i + at}{2}\right)t$

$d = \frac{2V_i}{2}t + \frac{1}{2}at^2$

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