

PhyzJob: Algebraic Kinematics Primer



1. List the equations for uniform accelerated motion.

"WHO CARES" QUANTITY	EQUATION
x	
v	
a	
t	

2. Write the correct equation (from the selections above) to use in solving the type of problem listed in each case below. Do **not** rearrange the equation to actually *so/ve* the problem, merely write down the equation you would start with.

a. Given v_0 , v , and a .
Find t .

Eqn: _____

b. Given x , a , and t .
Find v_0 .

Eqn: _____

c. Given x , v , and t .
Find v_0 .

Eqn: _____

d. Given a , t , and v .
Find v_0 .

Eqn: _____

e. Given v_0 , v , and a .
Find x .

Eqn: _____

f. Given v_0 , x , and a .
Find t .

Eqn: _____

g. Given v_0 , a , and x .
Find v .

Eqn: _____

h. Given v_0 , t , and v .
Find a .

Eqn: _____

i. Given v_0 , t , and v .
Find x .

Eqn: _____

j. Given v_0 , v , and x .
Find a .

Eqn: _____

k. Given v_0 , a , and t .
Find x .

Eqn: _____

3. Now, for the first four cases from part 2, continue the solving process by rearranging the initial equation to solve for the desired quantity. Draw a box around the final rearrangement.

Ex. Given v_0 , t , and v .
Find a .

Initial Eqn: $v = v_0 + at$

$$v - v_0 = at$$

$$a = (v - v_0)/t$$

a. Given v_0 , v , and a .
Find t .

Initial Eqn:

b. Given x , a , and t .
Find v_0 .

Initial Eqn:

c. Given x , v , and t .
Find v_0 .

Initial Eqn:

d. Given a , x , and v .
Find v_0 .

Initial Eqn:

4. Solve the following problem below completely, then check your answer against the one printed to the right.

An automobile accelerates at 4 m/s^2 from 20 m/s to 36 m/s .
How long did that acceleration take?

$$\begin{aligned}
 t &= 2 \\
 a &= 4 \text{ m/s}^2 \\
 v &= 36 \text{ m/s} \\
 v_0 &= 20 \text{ m/s}
 \end{aligned}$$
~~$$\begin{aligned}
 t &= 2 \\
 a &= 4 \text{ m/s}^2 \\
 v &= 36 \text{ m/s} \\
 v_0 &= 20 \text{ m/s}
 \end{aligned}$$~~

$$\begin{aligned}
 t &= 2 \\
 a &= 4 \text{ m/s}^2 \\
 v &= 36 \text{ m/s} \\
 v_0 &= 20 \text{ m/s}
 \end{aligned}$$

ANSWER: Don't beek utij youv sojve ttr broplew.