# 1.5-1.7 Assignment: The Kinematics Equations Name:

1. Rearrange the following equations for the indicated variable.

a.  Δt = ?

b.  vf = ?

c. 2ad = vf2 - vi2 vf = ?

d.  vi = ?

e.  a = ?

f.  vi = ?

g.  Δt = ?

h. If vi = 0 then Δd = ? for 

i. If vi = 0 then a = ? for 

j. If vi = 0 then Δt = ? for 

k. If vf = 0 then vi = ? for 

2. A car traveling at 60 m/s accelerates at +3.0 m/s2 for 9.0 s. How far does the car travel in this time? (6.6 x 102 m)

3. A car starting from rest travels 1296 m with an acceleration of 32 m/s2. How long does it take for the car to travel that distance? (9.0 s)

4. A car travels 1760 m over 10.0 s. If the acceleration was -20.0 m/s2, what was the initial velocity? (+276 m/s)

5. A car traveling at 60.0 m/s suddenly has its brakes applied bringing the car to a stop after 4.00 s. How far did the car travel in this time? (+120 m)

6. A car traveling at 100 m/s comes to a stop in 200 m. How long did it take for the car to come to a stop? (4.00 s)

7. A bullet leaves a rifle barrel with a speed of 350 m/s. If the length of the barrel is 0.75 m, determine the acceleration of the bullet while it was in the barrel.

(8.2 x 104 m/s2)

8. An object traveling at 10.0 m/s accelerates at 5.00 m/s2 for 12.0 s. How far does the object travel in the last three seconds? (188 m)