

1. A car starts from rest and accelerates to a speed of 27m/s in 12 seconds, what is the car's acceleration?

$V_i = 0$

$V_f = 27$

$d = *$

$a = ?$

$t = 12$

- a. Fill out the $V_i V_f d a t$ table, what is the unused variable? d

- b. What equation do you use?

1 $V_f = V_i + at$

- c. Find the acceleration

$$27 = a(12)$$

$$a = \frac{27}{12} = 2.25 \text{ m/s}^2$$

- d. How far did the car travel in the 12 seconds above?

$$d = \frac{V_i + V_f}{2} t$$

$$d = \frac{27}{2} (12) = 162 \text{ m}$$

- e. Later on, the car slows down to 20 m/s over a distance of 658m, what is the acceleration of the car?

$V_i = 27$

$V_f = 20$

$d = 658$

$a = ?$

$t = *$

$$V_f^2 = V_i^2 + 2ad$$

$$20^2 = 27^2 + 2(a)658$$

$$400 = 729 + 1316a$$

$$-329 = 1316a$$

$$a = -\frac{329}{1316} = -0.25 \text{ m/s}^2$$