

Acceleration Problems - Key

1. acceleration is the rate of change of velocity.
(How quickly velocity is changing)

2. Speed is how fast you are going. Acceleration is how fast your speed is changing

3. A jet plane traveling at a constant speed of 300 mi/hr - (It has a high speed, but no acceleration since its speed is constant)

4. - speed up, slow down, change direction

5. $a = \frac{\Delta v}{\Delta t} = \frac{20 \text{ m/s}}{4 \text{ s}} = 5 \text{ m/s}^2$

6. $a = \frac{\Delta v}{\Delta t} = \frac{-10 \text{ m/s}}{4 \text{ s}} = -2.5 \text{ m/s}^2$

7. $a = \frac{\Delta v}{\Delta t}$

$$2 \text{ m/s}^2 = \frac{\Delta v}{3 \text{ s}}$$

$$\Delta v = 6 \text{ m/s}$$

$v = 6 \text{ m/s}$

8. $a = \frac{\Delta v}{\Delta t}$

$$-4.5 \text{ m/s}^2 = \frac{-30 \text{ m/s}}{\Delta t}$$

$$4.5 \Delta t = 30$$

$$\Delta t = \frac{30}{4.5} = 6.67 \text{ s}$$