

5th Street Speeders

#	Vehicle Description	Distance (meters) =	Distance (Miles)	Time (s)	Time (hrs)	Speed (V=d/t)
1		200 m =	0.1243 Miles			
2		200 m =	0.1243 Miles			
3		200 m =	0.1243 Miles			
4		200 m =	0.1243 Miles			
5		200 m =	0.1243 Miles			
6		200 m =	0.1243 Miles			
7		200 m =	0.1243 Miles			
8		200 m =	0.1243 Miles			
9		200 m =	0.1243 Miles			
10		200 m =	0.1243 Miles			

Notes

(Time Conversion) → _____ (s) \div 60 = _____ (min.) \div 60 = _____ (Hrs.)

ACCELERATE ME!

*Acceleration is defined as change in velocity divided by time.
To calculate change in velocity.... Take final velocity minus initial velocity*

1. Example: A car accelerates from zero to 60 miles/hour in 5 seconds. What is the car's acceleration?

$$\begin{aligned}\text{Acceleration} &= \text{change in velocity} / \text{time} \\ &= (60 \text{ miles/hour} - 0) / 5 \text{ seconds} \\ &= 60 \text{ miles/hour} / 5 \text{ seconds} \\ &= 12 \text{ miles} / \text{hour} / \text{second}\end{aligned}$$

2. Example: A bus accelerates from 20 m/s to 30 m/s (roughly 45 mph to 68mph) in 5 seconds. What is the acceleration

$$\begin{aligned}\text{Acceleration} &= \text{change in velocity} / \text{time} \\ &= (30 \text{ m/s} - 20 \text{ m/s}) / 5 \text{ s} \\ &= 10 \text{ m/s} / 5 \text{ s} \\ &= 2 \text{ m/s/s} \quad \text{FYI sometimes written as } 2\text{m/s}^2\end{aligned}$$

3. Your old Ford F250 V8 5.0L engine takes off from a traffic light (zero velocity) and gets up to 30 m/s in 12 seconds. What is the acceleration of the truck?
4. A bicycle takes 12 seconds to get up to a speed of 9 m/s (roughly 20 mph). What is the bicycle's acceleration?
5. The jet airplane you are flying to Hawaii takes 25 seconds to get down the runway and get airborne. It's liftoff speed is 100 m/s. What is the acceleration of the airplane?
6. Your car's brakes cause a car to go from 30 m/s to a complete stop in 4 seconds. What is the acceleration of your car? (note you will get a negative number which means you are slowing down)
7. You step off an olympic diving platform and hit the water going 14 m/s after 1.4 seconds. What was your acceleration? (FYI – the platform was 10 m high)