Name _____

distance, velocity and acceleration
(Grades 6-8)

Formulas

Distance = velocity * time	d = v * t
Velocity = distance / time	v = Δ d / Δ t
Time = distance / velocity	t = d / v
Acceleration = change in velocity / time	a = Δ v / Δ t
Velocity = acceleration * time	v = a * t
Work = force * distance	W = F * d
Power = work / time	P = W / t
1 horsepower = 746 watts	1 hp = 746 watts

1. A race car makes 34 laps around the Daytona Speedway (1 lap is 2.5 miles). What would be the race car's average velocity if it makes the 34 laps in half an hour?

2. What would be the acceleration of a 1950s drag racer if the car accelerates from 0 to 130 mph (use 58 meters/second) in 12.8 seconds? See digitized artifact Official Start of First NHRA Drag Racing Meet, Great Bend, Kansas, 1955 ID# THF34472.

3. How much work would be done by the engine in a NASCAR stock car that exerts a force of 1,600 Newtons for a 2.0-mile (3,200-meter) lap? (One Newton is the force that accelerates 1 kg at a rate of 1 meter per second each second.)

4. A. What would be the power (in watts) of the car in Problem 3 if it takes 40 seconds to complete the lap?

B. How many horsepower would be used?

5. If the Daytona 500 was won in a time of 2 hours and 40 minutes, what would be the winner's average speed? (Remember, there are 60 minutes in an hour.)