Name _____

distance, velocity and acceleration (Grades 4-5)

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

1. During the Indianapolis 500, a winning driver can often cover the 500 miles in 3 hours. What would be his average velocity?

2. The land speed record set by the Goldenrod Racer [Summers Brothers "Goldenrod" Land Speed Record Car, 1965 ID# THF37676] was 409 miles per hour (mph). A NASCAR racer can travel 180 mph. A bicycle racer can travel 30 mph. How long would it take each of the three to travel 500 miles?

3. During time trials, a NASCAR racer might reach 210 mph. How far could a NASCAR racer travel in 8 hours if he could continue at that speed?

4. The Willys "Gasser" drag-race car [Willys Gasser, 1958 (engine view ID# THF69399) (side view ID# THF69391)] could accelerate from 0 to 140 mph (about 63 meters/second) in 12 seconds. What would be its acceleration (measured in meters/second^2)?

5. How much work is done by the pit crew pushing a car with a force of 2,000 Newtons through a distance of 30 meters? (One Newton is the force that accelerates 1 kg at a rate of 1 meter per second each second.)