Name: Date: Period:

Kinematics #2

$v = \frac{d}{t}$ $a = \frac{\Delta v}{t}$ $v_f = v_i + at$ *"Old Faithful"* $d = v_i t + \frac{1}{2}at^2$ *"The Big Chalupa"* $v_f^2 = v_i^2 + 2ad$ *"Ain't Got no Time"*

1. It takes a train quite a bit of time to get up to speed. If it starts at rest and accelerates for **2.6 km** over a course of **2 min**, what is its acceleration?

2. A truck slams on the brakes to come to a stop before hitting a deer. The truck accelerates at -12.9 m/s^2. If it was originally traveling at 35 m/s before hitting the brakes, how far would it go before it stopped?

3. Your car has an acceleration of 3.2 m/s^2. You step on the accelerator to get up to speed as you're merging onto the interstate. If it takes you 4.1 seconds to get up to a speed of 45 m/s, how fast were you going before you started accelerating?