Unit Conversion: unit on top cancels unit on bottom, conversion factors are equal but in different units. From this practice test:: miles per hour to feet per second. Conversion factors:
1 mile = 5280 ft, 1 hour = 3600 seconds. This is just an example of the general technique.

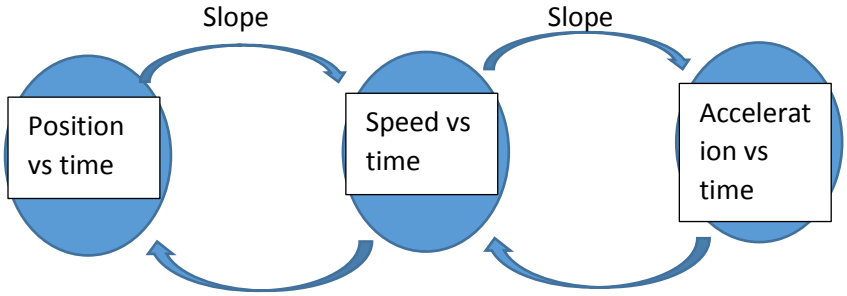
~~45 miles~~ x 1 ~~hour~~ x 5280 ft = (45*5280) / (3600) = 66 ft/sec
~~hour~~ 3600 sec 1 ~~mile~~

Speed: distance = rate*time
Metric Units: distance (m) mass (kg) time (sec) velocity (m/sec)
acceleration (m/sec^2) force (N = kg*m/sec^2)
Newton's First Law: An object in motion stays in motion.
zero net force = zero acceleration = constant velocity (if 1 is true, all 3 are true)
Newton's Second Law: F = mA (F is in Newtons, 1 N = 1 kg*m/sec^2)
F is 'net force' – sum of all reinforcing and opposing forces on an object
Formulas for free fall:
acceleration due to gravity is 'g' = 9.8 m/sec^2
weight = mg (because g is due to gravity)
A = (V_f – V_i) / time

Free fall velocity: g*t = V_f – V_i V_f = g*t + V_i (we took formula for acceleration, made A = g)
V_{AVG} = (V_f + V_i)/2

d = V_{AVG} * t

Graphs: position vs time, velocity (speed) vs time, didn't really talk about acceleration vs time



Area of a rectangle: A = Length * Width Triangle A = ½ * Base * Height = (Base * Height)/2
Newton's Third Law: For every action force there is a reaction force equal in magnitude and opposite in direction. All forces happen in pairs. Action and reaction forces do not cancel, because they act on different objects.
Momentum (P) = Mass * velocity : P = MV
A change in momentum is an **impulse = P2 – P1 = ΔP= Force * Time**
In any system, **Momentum is conserved.**
For 2 objects: P1(initial) + P2(initial) = P1(final) + P2(final)
we can also write: $M_1V_{1i} + M_2V_{2i} = M_1V_{1f} + M_2V_{2f}$
Work = Force * Distance or W = F*D
potential energy Ep = mgH : kinetic energy Ek = ½ mv^2