EF 151 Exam #2, Fall, 2005

Name: ____________________________  Section: _____________

This exam consists of 10 short-answer questions, each worth 10 points.

Be sure to:
• Show all of your work
• Include units for all answers
• Include the correct number of significant digits
• Include directions for all vectors
• Write your final answer in the box provided

Hints:
• Stay calm
• Glance over all problems, tackle the "easy" ones first
• Use reasonableness to guide you
• Allow yourself an average of 5 minutes per problem

Some Key Equations:
• Area of a circle = \pi r^2
• Volume of a cylinder = \pi r^2 h
• Law of Sines
  \[ \frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \]
• Law of Cosines
  \[ c^2 = a^2 + b^2 - 2ab \cos C \]

Useful Conversions:
• 1 gallon = 231 cubic inches
• 1 gallon = 4 quarts
• 1 gallon = 128 fluid ounces
• 1 m^3 = 1000 L
• 1 acre = 43,560 ft^2
• 1 mile = 8 furlongs
• 1 fathom = 6 ft
• 1 rod = 16.5 ft
• 1 chain = 22 yards
• 1 inch = 25.4 mm
• 1 watt = 1 N m/sec
• 1 hp = 745.7 watts (approximate)
• 1 hp = 550 ft lb / sec
• 1 lb = 4.45 N (approximate)
• 1 m = 1000 mm
• 1 g = 32.2 ft/sec^2 = 9.81 m/sec^2

Constant Acceleration Equations:
\[ s_2 = s_1 + \left( \frac{v_1 + v_2}{2} \right) \Delta t \quad s_2 = s_1 + v_1 \Delta t + \frac{1}{2} a \Delta t^2 \quad s_2 = s_1 + \frac{v_2^2 - v_1^2}{2a} \quad v_2 = v_1 + a \Delta t \]