~~Wednesday~~ Monday Workshop Problems for Solution Posting - Week 5

Goals: all group members should understand problem, solution, and steps in between. Group should collaboratively produce a solution which is clear, complete, and correct, shows all steps/reasoning with all steps valid, and that aims to be a document that someone else can learn from.

a) Collaboratively produce a public solution on whiteboards.
b) Get feedback on how solution might be improved. Revise solution based on feedback. Take a picture of the revised solution.
c) Choose a group member to post the solution. Solution must be posted by 11:59 pm tonight. Please follow the detailed instructions from the Solution Postings and Reviews Overview (available at the Week 2 Calendar page).
d) You are individually responsible for posting a Review to two (2) solutions by 6:00 pm Friday. Problem A groups Review Problem B solutions. Problem B groups Review Problem C solutions. Problem C groups Review Problem D solutions. Problem D groups Review Problem A solutions.

A. based on Quiz 4 #6:
A motorboat travels 12 miles down the river with the current. When the motorboat returns, it is moving against the current, so it travels 2 miles per hour slower and the trip takes 3 hours longer. Determine the time for each part of the trip, the speed of the boat (with respect to the shore) for each part of the trip, and the speed of the current.

B. based on Quiz 4 #4 & Pre-calculus Problem Set 4 #15:
a) Working together, Tom and Becky can paint a fence in 6 hours. If he worked alone, Tom would take 15 hours to paint the fence. How long would it take Becky to paint the fence if she worked by herself?

b) Christy can do a job in 8 hours less than Tony can. If they work together they can get the job done in 3 hours. How long would it take each to do the job alone?

C. based on Quiz 4 #3 and Pre-calculus Problem Set 4 #4:
a) Solve for x : $\dfrac{1}{x} + \dfrac{2}{x+1} = 2$. Solve the associated quadratic equation in 2 different ways.

b) The sum of the reciprocal of a number, the reciprocal of twice that number, and the reciprocal of 4 more than that number is equal to 11/12. Determine the number.

D. based on Physics Problem Set 4 #15:
A child on top of a roof of a building kicks a soccer ball from the edge of the roof. The ball's initial velocity components are 16.8 m/s in the horizontal direction and 12.6 m/s in the vertical direction. The ball lands 55 meters away from the edge of the building. How tall is the building that the child is standing on? How high above the ground does the ball reach? How long is the ball in the air? What speed is the ball going just before it hits the ground?