QUIZ 3 - MATH 152 Friday, September 23

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Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. A industrial tank has the shape of a pyramid with square base of side 3 meters and height of 5 meters and contains a liquid of density ρ kg/m^3 up to the 3 meter mark measured from the bottom. Find the work needed to empty the tank from the apex (top) of the pyramid, if the acceleration of gravity is g m/sec^2.

2. Use integration by parts to compute the integral

$$\int \tan^{-1} x \; dx.$$

(**Hint:** Remember the method used for $\int \ln x dx$.)

3. Evaluate the integral $\int x^7 \cos(x^4) dx$.