GROUP QUIZ 6 QUESTIONS

TAKE HOME QUIZ

BECAUSE YOU MUST ACTUALLY EVALUATE THE INTEGRALS YOU CREATE, YOU SHOULD WRITE THE DEFINITE INTEGRAL WHICH REQUIRES THE LEAST WORK TO COMPLETE

YOU MUST EVALUATE YOUR INTEGRALS WITHOUT A CALCULATOR.

<u>YOU MUST USE ONLY THE TECHNIQUES COVERED IN THIS CLASS SO FAR TO FIND</u> <u>ANTI-DERIVATIVES.</u>

THE NUMBERING IS INTENTIONAL.

- A spherical tank of radius 4 feet containing water is buried underground, so that its center is 8 feet below ground level.
 - [a] Find the work done in pumping the water to ground level [i] if the tank is full.
 - [ii] if the tank is half full.
 - [b] Find the work done in pumping the top half of the water to ground level if the tank is full.

Find the hydrostatic force on the vertical window of an aquarium

- [a] if the window is a circle of radius 1 foot with the center 10 feet below the surface of the water.
- [b] if the window is a semicircle of radius 1 foot with the flat side up and 10 feet below the surface of the water.
- [c] if the window is a triangle of height 1 foot and base 2 feet with the base up and 10 feet below the surface of the water.
- [d] if the window is a triangle of height 1 foot and base 2 feet with the base down and 10 feet below the surface of the water.

YES, THESE ARE THE SAME QUESTIONS AS ON THE MIDTERM 2 REVIEW. DO NOT MEMORIZE THE ANSWERS FROM THE REVIEW PACKAGE, SINCE YOU WILL BE REQUIRED TO PROVIDE EXACT ANSWERS. YOU MAY USE ρ AS THE DENSITY OF WATER IN YOUR FINAL ANSWERS.

GROUP QUIZ 6 QUESTIONS

[9]

[10]