Math 76 Assessment 4 §2.5 Physical Applications

Things to remember:

1. The problem to complete is shown below. Write your name and solution on the next page where instructed.

2. Please make sure your full name is written neatly in the box.

3. Your score will be determined by **Mechanics** (2 points) and by **Content** (3 points).

4. The following rubric will be used for **Mechanics**:

Clear neat work, steps in order and easily followed, proper use of notation	2
Mostly clear work; minor errors in notation or skipped steps	1.5
Steps/handwriting hard to follow/read; major errors in notation	1
No discernible or relevant work, or work impossible to read/follow	0

5. You are not allowed to consult outside sources, including notes, books, the internet, or other people, while taking this assessment. Calculators are allowed only for basic numerical or scientific computations, not for graphing or algebra.

6. If you need more room, you may finish on a plain piece of paper or blank document.

7. When you are finished, create a legible, well-lit **.pdf file** of your work and upload it to Assessment 4 on Gradescope. If prompted, follow the directions to assign the page(s) of your submission that contain your work for the question. More info about submitting to Gradescope:

`http://bit.ly/gradescope-help`

Find the hydrostatic force on the wall shown (next page).

Your answer should be expressed as an *exact value* using one or more whole numbers or fractions, **and** with a *decimal approximation* to 2 decimal places. You should also include appropriate units. (For example: $365(81 + \frac{53}{7}) \approx 32,328.57$ kumquats per gallon)

Your solution should include:

- (0.5 point) Explanation and labeling of picture to indicate coordinate system used;
- (0.5 point) Explanation of how strategies and formulas are used to determine hydrostatic force;
- (1 point) Correct integral(s) that match the given coordinate system;
- (1 point; 0 if no relevant work/explanation) Correct final answer (exact and approximate), including appropriate units.

Assessment 4 Full Name:

Version B

Follow the directions on the previous page.

The diagram shows a triangular hatch on a cruise ship with height 9 m and base length 3 m which is positioned vertically in the water (weight density of ocean water = 10,030 N/m^3) so that the top is 2 m above the surface. The base of the hatch is parallel to the surface of the water. The diagram is not necessarily to scale.