Math 250B-DX02
Test 3

SUBMISSION DEADLINE: 1:30pm Pacific Time

Submit on D2L or email HowardL@camosun.ca

Number of Questions: 4
Total Marks: 14

Show all your work for full marks.
You MAY use the course website (notes, videos etc)
You may NOT copy from others (classmates, tutors, Chegg etc)

Submit jpg or pdf files
Feel free to handwrite your solutions and take photos of your work

1. [4 marks] Evaluate:
$$\int_0^9 \int_{\sqrt{x}}^3 \sqrt{1+y^3}\, dydx$$

2. [3 marks] Set up a **double integral** in **polar coordinates** for the following. Do not evaluate the integrals.

a) The area in the xy-plane defined by
$4 \leq x^2 + y^2 \leq 5, \quad x \geq 0$ and $y \geq \frac{x}{\sqrt{3}}$

b) The mass of a thin flat plate with $\delta = x$, having the shape described in part a).

3. [2 marks] Set up a **triple integral** for the following. Do not evaluate the integral.

The volume in the first octant $(x \geq 0, y \geq 0, z \geq 0)$ bounded by $z = 16 - y^2$ and $4x + 5y = 20$.

4. [5 marks] Use a **double integral** in **polar coordinates** to find the volume between $z = 2\sqrt{x^2 + y^2}$ and $z = \sqrt{45 - x^2 - y^2}$.