Math 250B-DX01
Test 1

SUBMISSION DEADLINE: 3:30pm Pacific Time

Submit on D2L or email HowardL@camosun.ca

Number of Questions: 4
Total Marks: 17

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] The area of a certain triangular field is given by $A = \frac{1}{2}b^2 \sin\theta$, where two of the sides have length b and θ is the angle between these two sides. Use differentials to approximate the change in the area if b is increased from 300m to 307m and θ is decreased from 45.0° to 42.0°

2. [4 marks] Compute $\frac{\partial^2 f}{\partial x \partial y}$ for
$f = x^3 \cos y + e^{4xy} + \ln(y^2 + 2)$

3. [4 marks] Find the equation of the tangent plane to $z = xy - 7x^2 + 3y^3$ at the point where $x = -3$ and $y = 2$

4. [5 marks] Find the absolute maximum of $z = 2xy^2$ over the region $x^2 + y^2 \leq 15$. Give the absolute maximum value and any points where it is achieved.