

Math 250B-DX02
Test 1

SUBMISSION DEADLINE: 4:30pm 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 volume of a cone is $V = \frac{\pi}{3}r^2h$, where r is the radius and h is the height. Use differentials to approximate the change in the volume if the radius is increased from 50cm to 52cm and the height is decreased from 2.00m to 1.95m
2. [4 marks] Find the equation of the tangent plane to $z = x^2y^3 - xy$ at the point where $x = -3$ and $y = 2$
3. [4 marks] Compute $\frac{\partial^2 f}{\partial x \partial y}$ for
 $f = x^4 \cos y + 2 \sin(xy) + e^{7y}$
4. [5 marks] Find the absolute maximum of $z = 2xy^2$ over the region $x^2 + y^2 \leq 21$. Give the absolute maximum value and any points where it is achieved.