MATH 392 QUIZ 1 - Version B
June 4, 2019

Name: _____

Instructions: Use your own scrap paper. Write your answers in the space provided.

1. Write the general form for $\int\int\int f(x,y,z)\,dV$ in:

(a) Cylindrical coordinates: _____

(b) Spherical coordinates: _____

2. State the formula for the following, defining what the symbols/variables mean:
(a) a line (3 forms): formula 1: _____ Meanings: _____
formula 2: _____
formula 3: _____
(b) a plane: formula: _____ Meanings: _____

(c) the tangent plane to the surface $F(x,y,z) = k$ at the point (a,b,c):

formula: _____ Meanings: _____

3. Compute:
(a) $\langle -1,2,0\rangle \times \langle 3,4,-2\rangle$ _____

(b) $\left\langle \pi, -3\cos t, 4t^2\right\rangle \cdot \left\langle 2, e^t, 2t^{-2}\sin t^2\right\rangle$ _____

4. Set up a triple integral to compute the volume of the region bounded by $z = \sqrt{x^2+y^2}$ and $z = 4$ in the first octant. Include a sketch in your answer.

5. Evaluate the integral set up in problem 4. _____