

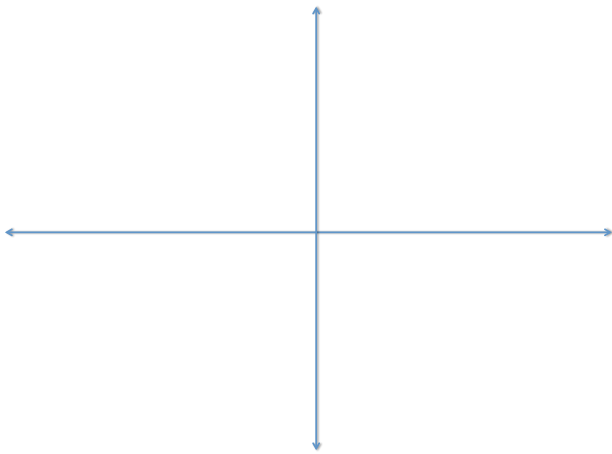
Quiz 5, Calculus III

Fall 2012

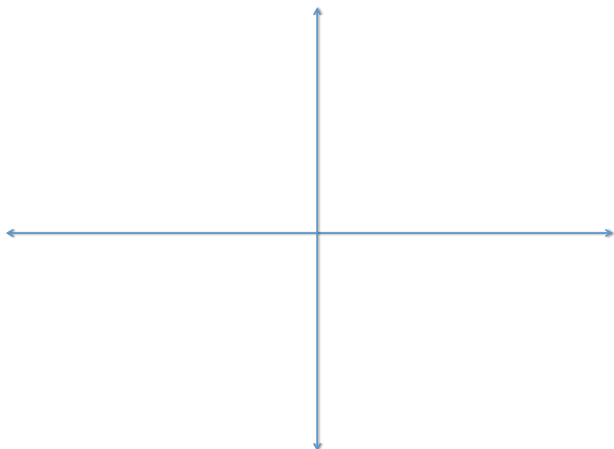
Name: _____

1. (3 points) Sketch the region of integration, then evaluate the iterated integral. Change the coordinate system if you think it will simplify the integral.

$$\int_0^3 \int_{-\sqrt{9-x^2}}^{\sqrt{9-x^2}} 4x \, dy \, dx$$



2. (3 points) Set up, but do not integrate, an integral to find the surface area of the upper portion of the sphere $x^2 + y^2 + z^2 = 25$ that lies within the cylinder $x^2 + y^2 = 9$. If the integral needs to be converted to a different coordinate system, do the conversion and simplify the integrand, but you do not need to integrate it.



3. (4 points) Set up, but do not integrate, a triple integral to find the volume of the following solid: The solid lies under the surface $z = 2xy$ and lies above the triangle in the xy -plane that has vertices $(2,0)$, $(0,2)$, and $(2,2)$.

