

## Math 302 – Quiz 4 (Term 171)

Name:

ID #:

section

-----

**Question 1** (6 points): Check the divergence theorem for the vector field

$$\hat{\mathbf{F}} = r \hat{\mathbf{a}}_r - \sin\theta \hat{\mathbf{a}}_\theta - \cos\varphi \hat{\mathbf{a}}_\varphi.$$

Over the sphere S given by  $x^2 + y^2 + z^2 = 9$ .

**Question 2** (4 pints): Compute the area of the surface of the cone given by  $z = \sqrt{x^2 + y^2}$ ,  $0 \leq z \leq 4$ .