Name: ID #:   Section #:

Q1) [**3pts**] Evaluate

$$\iiint_E x^2 e^y \ dV,$$

where E is bounded by the parabolic cylinder $z = 1 - y^2$ and the planes $z = 0$, $x = 1$ and $x = -1$.

Q2) [**3pts**] Evaluate the integral by changing to cylindrical coordinates:

$$\int_{-2}^{2} \int_{-\sqrt{4-y^2}}^{\sqrt{4-y^2}} \int_{\sqrt{x^2+y^2}}^{2} xz \ dzdxdy$$

Q3) [**4pts**] Use spherical coordinates to find the volume of the solid that lies above the cone $\phi = \pi/3$ and below the sphere $\rho = 4\cos\phi$.

Name: ID #: Section #:

Q1) [**4pts**] Use triple integral to find the volume of the solid enclosed by the parabolic cylinder $x = y^2$ and the planes $z = 0$ and $x + z = 1$.

Q2) [**3pts**] Use cylindrical coordinates to evaluate

$$\iiint_E x \, dV,$$

where E is enclosed by the planes $z = 0$ and $z = x + y + 5$ and by the cylinders $x^2 + y^2 = 4$ and $x^2 + y^2 = 9$.

Q3) [**3pts**] Use spherical coordinates to evaluate

$$\iiint_H (9 - x^2 - y^2) \, dV,$$

where H is the solid hemisphere $x^2 + y^2 + z^2 \leq 9, \ z \geq 0$.