

1. a sphere with center $(-3, -4, 2)$ and radius 5.
2. $x = 4 + 2t$, $y = 3t$, $z = -t$
3. a parabola in the yz -plane
4. $19/3$
5. $\frac{4}{5}\vec{i} + \frac{3}{5}\vec{j}$.
6. Elliptic paraboloid
7. $f_{xy} = 3x^2 \cos(xy) - x^3y \sin(xy)$
8. $4x - 4y - z + 5 = 0$
9. $\vec{v}(t) = 2t\vec{i} + e^t\vec{j}$, $\vec{r}(t) = (t^2 + 1)\vec{i} + (e^t - 1)\vec{j} + \vec{k}$.
10. (a) $3/2$ (b) $1/4$ (c) The limit does not exist.