1. (§16.6#19) Find a parametric representation for the plane through the origin that are parallel to the vectors \( \hat{i} - \hat{j} \) and \( \hat{j} = \hat{k} \).

2. (#23) Find a parametric representation for the part of the sphere \( x^2 + y^2 + z^2 = 4 \) that lies above the cone \( z = \sqrt{x^2 + y^2} \).

3. (#29) Find parametric equations for the surface obtained by rotating the curve \( y = \frac{1}{1+x^2}, -2 \leq x \leq 2 \), about the \( x \)-axis and sketch the surface.

4. (#33) Find an equation of the tangent plane to the parametric surface
\[
\begin{align*}
x &= u + v, \\
y &= 3u^2, \\
z &= u - v;
\end{align*}
\] at \( P(2,3,0) \).

5. (#35) Find an equation of the tangent plane to the parametric surface
\[
\bar{r}(u,v) = u \cos v \hat{i} + u \sin v \hat{j} + v \hat{k};
\] at \( P = \bar{r}(1, \pi/3) \).

6. (#39) Find the area of the part of the plane \( 3x + 2y + z = 6 \) that lies in the first octant.

7. (#44) Find the area of the part of the surface \( z = 4 - 2x^2 + y \) that lies above triangle with vertices \((0,0), (1,0)\) and \((1,1)\).

8. (#47) Find the area of the part of the paraboloid \( y = x^2 + z^2 \) that lies within the cylinder \( x^2 + z^2 = 16 \).

9. (#64ac) (a) Find a parametric representation for the torus obtained by rotating about the \( z \)-axis the circle in the \( xz \)-plane with center \((b,0,0)\) and radius \( a < b \). [Hint. Take as parameters the angles \( \theta \) and \( \alpha \) shown in the figure.]
(c) Find the surface area of the torus.