1. Let $u = \langle 4, -2 \rangle$. Find a vector parallel to $u$ with magnitude 4 times $u$.

2. Let $u = \langle 3, -4 \rangle$ and Let $v = \langle 1, -1 \rangle$. Which has greater magnitude $2u$ or $7v$.

3. Sketch the plane parallel to the xy-plane containing the point $(2, 3, 1)$.

4. Define an inequality that describes the a ball with radius 3 centered at $(1, 2, 1)$.
5. Give a geometric description of the set of points satisfying the condition

\[ X^2 + Y^2 - 10Y + Z^2 \leq -9 \]

6. A model plane is flying horizontally due north at a speed of 25 mph, when it encounters a wind blowing west at a speed of 15 mph and a downdraft of 10 mph. What is the speed of the plane after being hit by the gust of wind.