1. Add & Sketch to Verify Answer

   a) \( \mathbf{v}_1 = \langle 1, 3 \rangle \) \( \mathbf{v}_2 = \langle -3, 1 \rangle \)

   b) \( \mathbf{v}_1 = \langle 10, 2 \rangle \) \( \mathbf{v}_2 = \langle 1, 1 \rangle \)

2. Visually verify that \( \mathbf{v} - \mathbf{w} = \mathbf{v} + (-\mathbf{w}) \)
   
   For example, let \( \mathbf{v} = \langle 1, 1 \rangle \) \( \mathbf{w} = \langle -1, 1 \rangle \)

3. Compute magnitude \( 4\mathbf{i} + 11\mathbf{j} \)

4. State the triangle inequality, verify it with the vectors \( \mathbf{v} = \langle 1, 0 \rangle \) \( \mathbf{w} = \langle 0, 1 \rangle \) and draw a corresponding picture.
5) Find a vector $\mathbf{v}$ with $\|\mathbf{v}\| = 3$ that is in the same dir. to the vector $\langle 4,3,1 \rangle$.

Extra: What does it mean algebraically for two vectors to be in the same direction?

6)

a) $x^2 + y^2 + z^2 = 4, \ x, y, z \geq 0$

b) $x^2 + y^2 = 7, \ |z| \leq 7$

c) $y^2 + z^2 = 4$

7) Write the equation for

   a) The $xy$-plane  
   b) $yz$-plane

   c) The sphere of radius 1 centered at $(1,1,1)$

   d) The sphere centered at $(1,1,1)$ that passes through the pt. $(0,0,0)$