1. Consider the following two vectors:

\[
\begin{align*}
\mathbf{u} & \quad \mathbf{v} \\
\end{align*}
\]

Match each of the following vector expressions with their corresponding graphical vector.

(a) \( \mathbf{u} + \mathbf{v} \)

(b) \( \mathbf{u} - \mathbf{v} \)

(c) \( \mathbf{v} - \mathbf{u} \)

(d) \( 2\mathbf{u} \)
**Solution:** I'll only show one solution, but the technique should give you the right idea. Consider \( u + v \), for instance. The general technique is to take the tail of \( v \) and attach it to the tip of \( u \) and draw the resulting vector. Graphically, this yields:

![Diagram](image)

Notice this is exactly the vector in (b). The other answers are (c), (d), (a).
2. **In 3 dimensions**, draw the following and state what shape it is:

\[ x = 5. \]

*Hint:* this is not a line.

**Solution:** We discussed similar objects in class. For \( x = 5 \), the \( x \) component is fixed at 5 and \( y, z \) vary freely. This is exactly the description of a plane, which can be seen below. Any real attempt at conveying this was accepted.