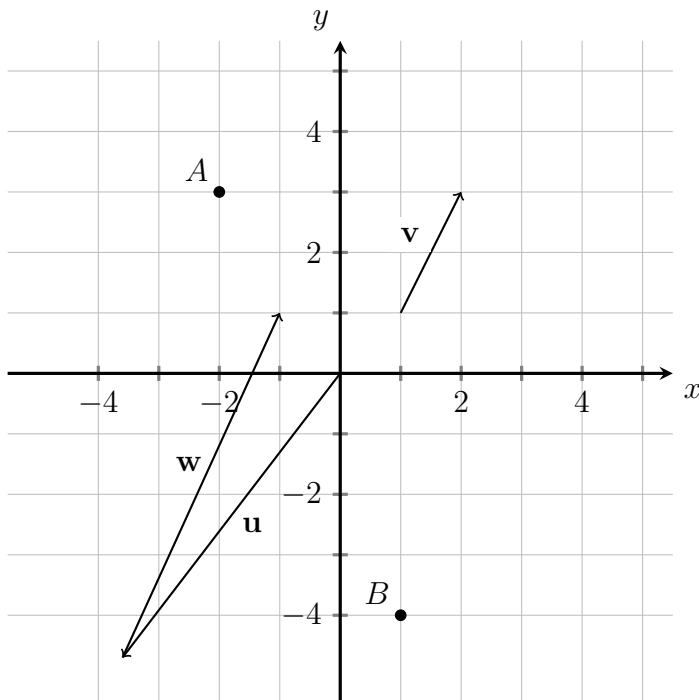


Math 214 Spring 2017
Linear Algebra HW 1
Due Friday, January 27

- Draw a graph of the Cartesian plane with $\begin{bmatrix} 2 \\ 3 \end{bmatrix}$ and $\begin{bmatrix} -1 \\ 4 \end{bmatrix}$ in standard position.
 - Draw a graph of the Cartesian plane with the vector $\begin{bmatrix} 3 \\ -1 \end{bmatrix}$ with its tail at the point $(1, 2)$, and the vector $\begin{bmatrix} 2 \\ -4 \end{bmatrix}$ with its tail at $(-1, 3)$.
- Use the picture below to:
 - Write the vector \overrightarrow{AB} in standard vector notation.
 - Write the vector \mathbf{v} in standard vector notation.
 - Find the vector $\mathbf{u} + \mathbf{w}$ and write it in standard vector notation.



3. (a) If $A = (2, 1)$ and $B = (-2, 2)$, write the vector \overrightarrow{AB} in standard vector notation.
(b) If $C = (1, -1, 0)$ and $D = (0, 1, 2)$, write the vector \overrightarrow{CD} in standard vector notation.

4. Compute the following:

(a)

$$\begin{bmatrix} 1 \\ -3/2 \\ 4 \end{bmatrix} + \begin{bmatrix} -7 \\ 2 \\ 1 \end{bmatrix} = \begin{bmatrix} 1 \\ 5 \\ 3 \\ 7 \\ 2 \end{bmatrix} + \begin{bmatrix} -5 \\ -3 \\ 1 \\ \pi \\ 2 \end{bmatrix} =$$

5. Compute the following:

$$e \cdot \begin{bmatrix} 2 \\ 1 \\ -2 \\ -3 \end{bmatrix} = -3 \cdot \begin{bmatrix} -7 \\ 3 \\ 1 \end{bmatrix} =$$

6. Let $\mathbf{u} = \begin{bmatrix} -1 \\ 0 \\ 3 \end{bmatrix}$, let $\mathbf{v} = \begin{bmatrix} 4 \\ -2 \\ 7 \end{bmatrix}$, and let $\mathbf{w} = \begin{bmatrix} 0 \\ 5 \\ -3 \end{bmatrix}$.

- (a) Compute $2\mathbf{v} + 3\mathbf{u}$
(b) Compute $5\mathbf{u} + 2\mathbf{w}$.