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1594 N723

HOMEWORK ASSAIGNMENT #1

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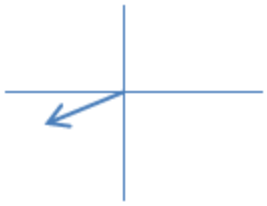
- In exercise 3 display the following vectors using arrows on an xy-graph: u,v,-2v,u+v,u-v, u-2v

$$U = \begin{bmatrix} -1 \\ 2 \end{bmatrix} \quad V = \begin{bmatrix} -3 \\ -1 \end{bmatrix}$$

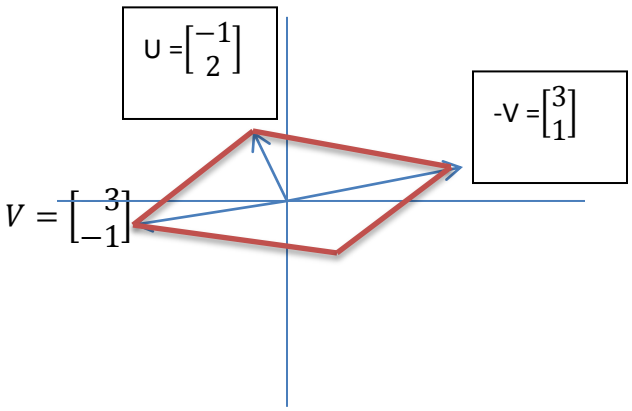
$U = \begin{bmatrix} -1 \\ 2 \end{bmatrix}$; $V = \begin{bmatrix} -3 \\ -1 \end{bmatrix}$

- U = (-1,2)

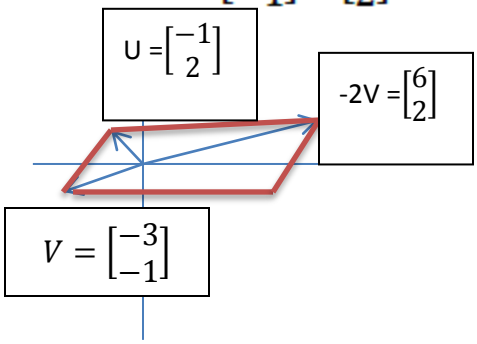
- V= (-3,-1)



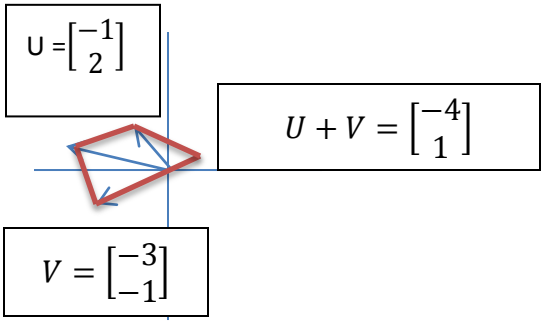
- $-V = V = -\begin{bmatrix} -3 \\ -1 \end{bmatrix} = \begin{bmatrix} 3 \\ 1 \end{bmatrix}$



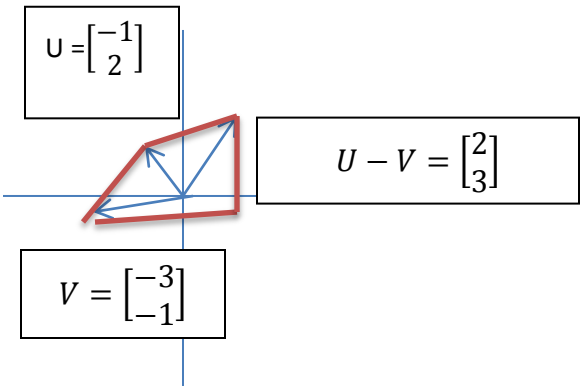
- $-2V = -2\begin{bmatrix}-3\\-1\end{bmatrix} = \begin{bmatrix}6\\2\end{bmatrix}$



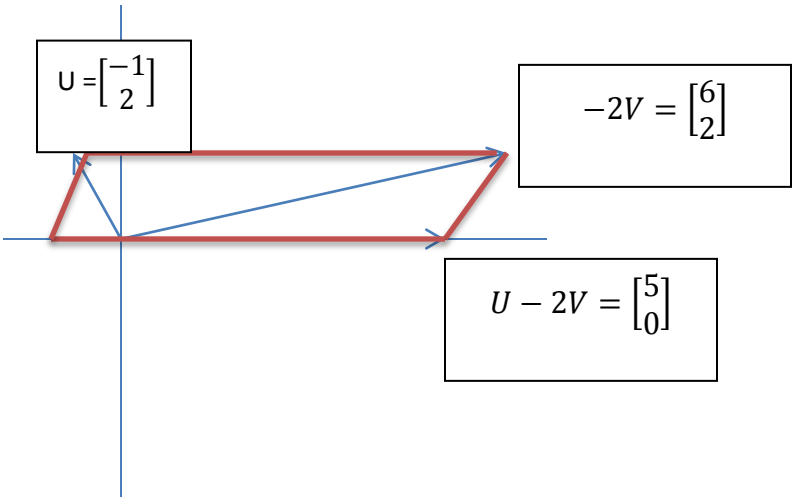
- $U+V = \begin{bmatrix}-1\\2\end{bmatrix} + \begin{bmatrix}-3\\-1\end{bmatrix} = \begin{bmatrix}(-1)+(-3)\\(2)+(-1)\end{bmatrix} = \begin{bmatrix}-4\\1\end{bmatrix}$



- $U-V = \begin{bmatrix}-1\\2\end{bmatrix} - \begin{bmatrix}-3\\-1\end{bmatrix} = \begin{bmatrix}(-1)-(-3)\\(2)-(-1)\end{bmatrix} = \begin{bmatrix}2\\3\end{bmatrix}$



- $U-2V = \begin{bmatrix}-1\\2\end{bmatrix} - (2)\begin{bmatrix}-3\\-1\end{bmatrix} = \begin{bmatrix}(-2)(-3)\\(-2)(-1)\end{bmatrix} = \begin{bmatrix}6\\2\end{bmatrix} = \begin{bmatrix}-1\\2\end{bmatrix} - \begin{bmatrix}6\\2\end{bmatrix} = \begin{bmatrix}5\\0\end{bmatrix}$



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- In exercise 1 compute each matrix sum or product if it is defined. If an expression is undefined, explain.

$A = \begin{bmatrix}2 & 0 & -1\\4 & -5 & 2\end{bmatrix}$; B = $\begin{bmatrix}7 & -5 & 1\\1 & -4 & -3\end{bmatrix}$; C= $\begin{bmatrix}1 & 2\\-2 & 1\end{bmatrix}$; D = $\begin{bmatrix}3 & 5\\-1 & 4\end{bmatrix}$

- -2A = (-2)$A = \begin{bmatrix}2 & 0 & -1\\4 & -5 & 2\end{bmatrix} = \begin{bmatrix}(-2)(2); (0)(-2); (-2)(-1)\\(-2)(4); (-2)(-5); (-2)(2)\end{bmatrix} = \begin{bmatrix}-4 & 0 & 2\\-8 & 10 & -4\end{bmatrix}$

- B-2A = B=$\begin{bmatrix}7 & -5 & 1\\1 & -4 & -3\end{bmatrix}$ -2 $A = \begin{bmatrix}2 & 0 & -1\\4 & -5 & 2\end{bmatrix} =$
$\begin{bmatrix}7 & -5 & 1\\1 & -4 & -3\end{bmatrix} - \begin{bmatrix}-4 & 0 & 2\\-8 & 10 & -4\end{bmatrix} = \begin{bmatrix}3 & -5 & 3\\-7 & 6 & -7\end{bmatrix}$

  ***-2A came from above

- AC = Size difference A=(2×3); C=(2×2) = UNDEFINED because 3 is not equal (≠) to 2

- CD = C= $\begin{bmatrix}1 & 2\\-2 & 1\end{bmatrix} \times$ D = $\begin{bmatrix}3 & 5\\-1 & 4\end{bmatrix} = \begin{bmatrix}(1)(3) + (2)(-1); & (1)(5) + (2)(4)\\(-2)(3) + (1)(-1); & (-2)(5) + (1)(4)\end{bmatrix} =$
$\begin{bmatrix}1 & 13\\-7 & -6\end{bmatrix}$