d) $4v - 2v = 2v = \begin{pmatrix} 6 \\ 14 \\ 0 \\ 22 \end{pmatrix}$

e) $v^T = (3, 7, 0, 11)$ or 1×4.

f) $\|v\| = \sqrt{4^2 + 3^2 + 1^2 + 5^2}$ (wrong question, this is 10.1.3 @)

$= \sqrt{16 + 9 + 1 + 25}$

$= \sqrt{51}$

10.1.2

f) $\|v\| = \sqrt{3^2 + 7^2 + 0^2 + 11^2} = \sqrt{9 + 49 + 0 + 121} = \sqrt{179}$

10.1.3

b) $\|v_1 - v_2\| = \begin{pmatrix} 4 \\ 3 \\ 1 \\ 5 \end{pmatrix} - \begin{pmatrix} 2 \\ 3 \\ 1 \\ 1 \end{pmatrix} = \begin{pmatrix} 2 \\ 0 \\ 0 \\ 4 \end{pmatrix} = \sqrt{2^2 + 0^2 + 0^2 + 4^2}$

$= \sqrt{4 + 16} = \sqrt{20}$

10.2.1

a) $2A = 2 \cdot \begin{bmatrix} 2, & 1, & -1 \\ 1, & -1, & 1 \end{bmatrix} = \begin{bmatrix} 4, & 2, & -2 \\ 2, & -2, & 2 \end{bmatrix}$

b) $B - 2A = \begin{bmatrix} 4, & -2, & 1 \\ 2, & -4, & -2 \end{bmatrix} - \begin{bmatrix} 4, & 2, & -2 \\ 2, & -2, & 2 \end{bmatrix} = \begin{bmatrix} 0, & -4, & 3 \\ 0, & -2, & -4 \end{bmatrix}$

c) Cannot be defined.

d) $2D - 3C = 2 \cdot \begin{bmatrix} 3, & 4 \\ 4, & 3 \end{bmatrix} - 3 \cdot \begin{bmatrix} 1, & 2 \\ 2, & 1 \end{bmatrix} =$ (next page) ...