

QUIZ 2

MATH 204

Problem 1. Let $\vec{a} = \begin{pmatrix} 1 \\ -2 \\ 4 \end{pmatrix}$, $\vec{b} = \begin{pmatrix} 3 \\ 2 \\ 1 \end{pmatrix}$, $\vec{c} = \begin{pmatrix} 0 \\ 3 \\ 2 \end{pmatrix}$. Find $2\vec{a} + 3\vec{b} - \vec{c}$.

Answer: $2\vec{a} + 3\vec{b} - \vec{c} = \begin{pmatrix} 11 \\ -1 \\ 9 \end{pmatrix}$.

Problem 2. Let $A = \begin{pmatrix} 2 & 3 & 0 \\ 1 & 0 & 2 \end{pmatrix}$, let B be the transpose of A . Find AB .

Answer: $\begin{pmatrix} 13 & 2 \\ 2 & 5 \end{pmatrix}$.

Problem 3. a) Write down the system of equations

$$\begin{cases} 3x + 4y + 5z = 6 \\ 5x + 7y + 8z = -5 \end{cases}$$

in the matrix form.

b) Suppose that A is an $m \times n$ -matrix, B is an $n \times k$ -matrix, C is a $k \times m$ -matrix. What are the dimensions of the product matrix $CABC$?

Answer: a) $\begin{pmatrix} 3 & 4 & 5 \\ 5 & 7 & 8 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 6 \\ -5 \end{pmatrix}$.

b) $k \times m$.