Assignment for Section 2.1: Vectors and linear equations

(1) Compute

$$A\boldsymbol{x} = \begin{bmatrix} 1 & 2 & 4 \\ -2 & 3 & 1 \\ -4 & 1 & 2 \end{bmatrix} \begin{bmatrix} 2 \\ 2 \\ 3 \end{bmatrix}$$

in two ways:

(a) by dot products of the rows of A with the column vector $\boldsymbol{x}$;

(b) as a combination of the columns of A.

(2) Find the components of

$$\begin{bmatrix} 1 & 2 & 4 \\ 2 & 0 & 1 \end{bmatrix} \begin{bmatrix} 3 \\ 1 \\ 1 \end{bmatrix}.$$