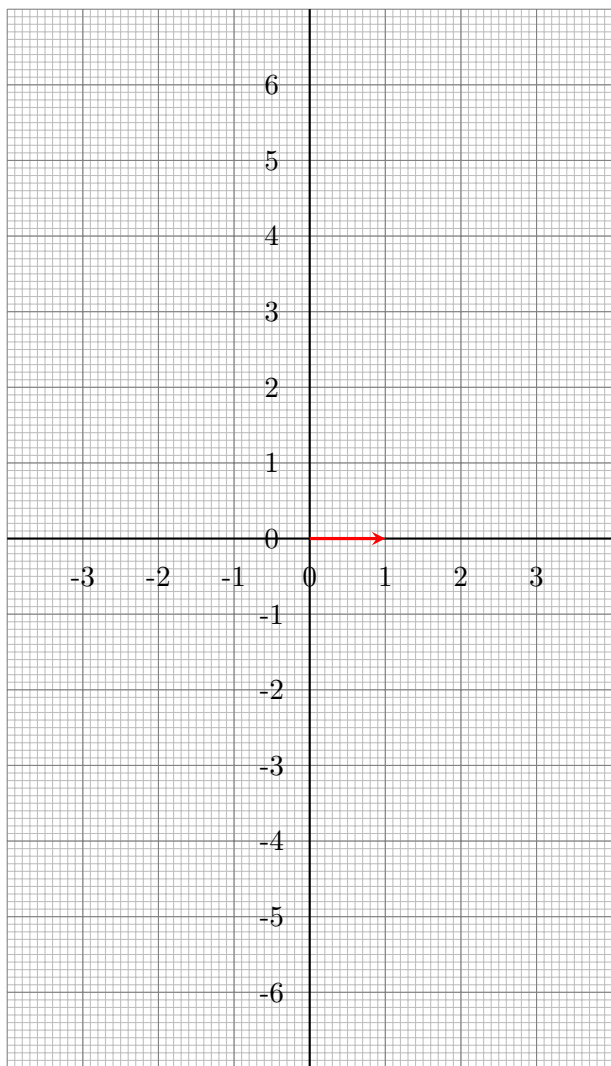
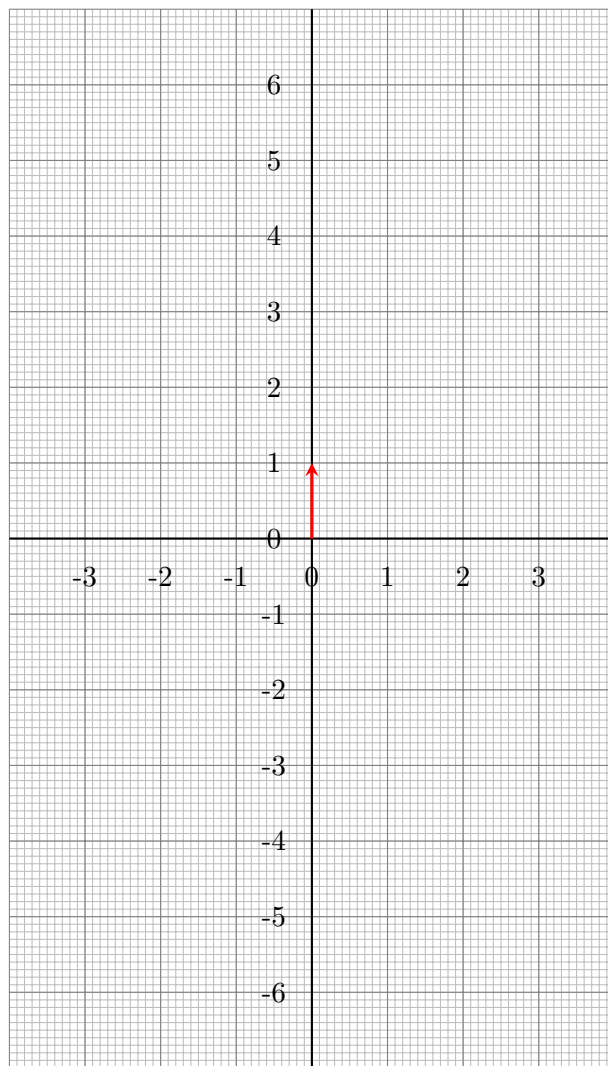


Write in the form  $a\mathbf{i} + b\mathbf{j}$ :

a)

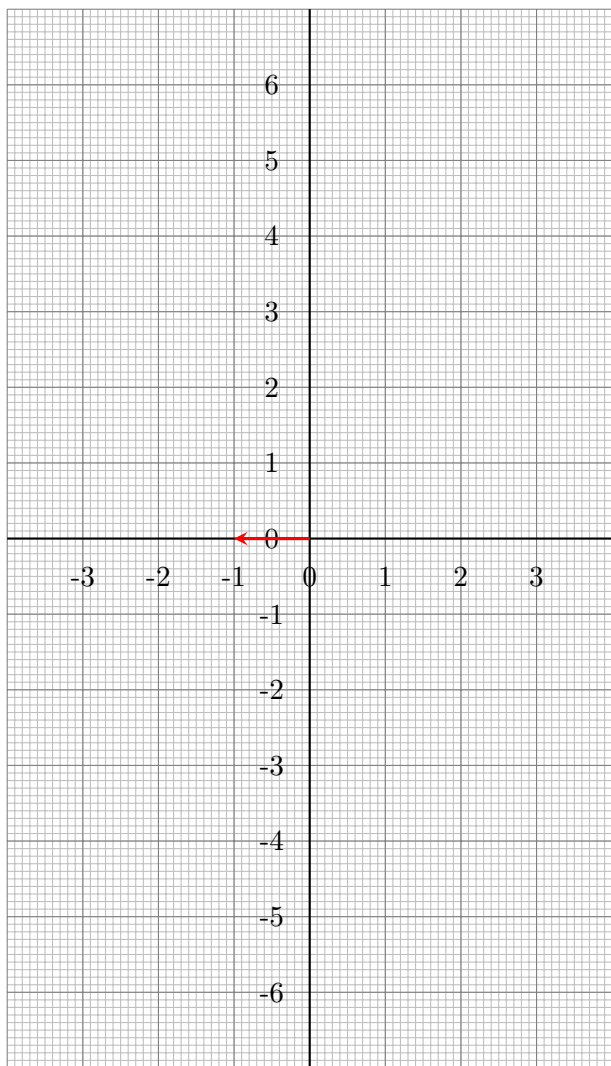


b)

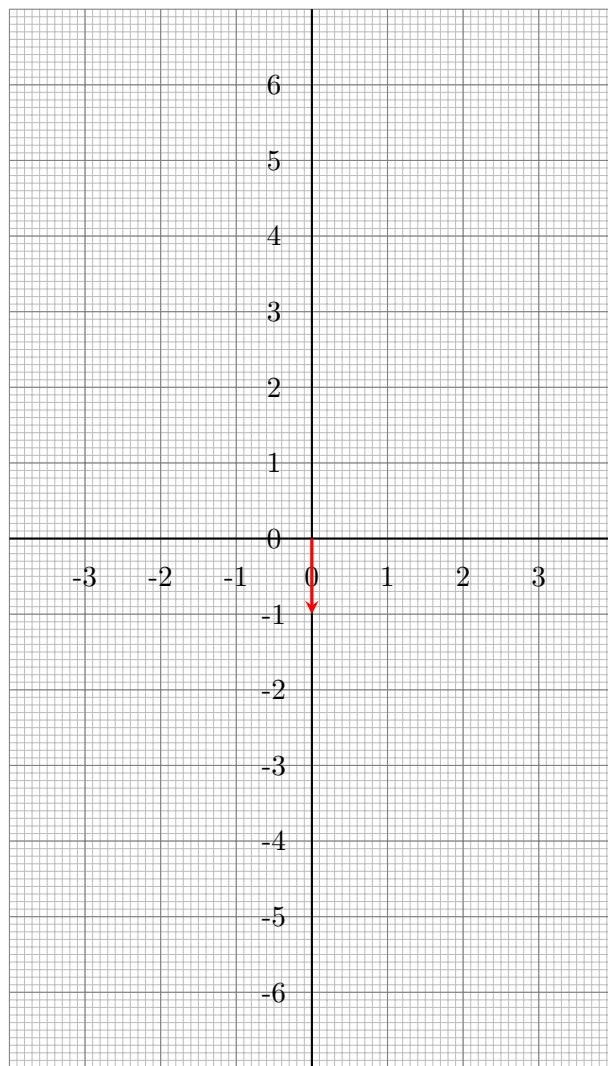


Write in the form  $ai + bj$ :

a)

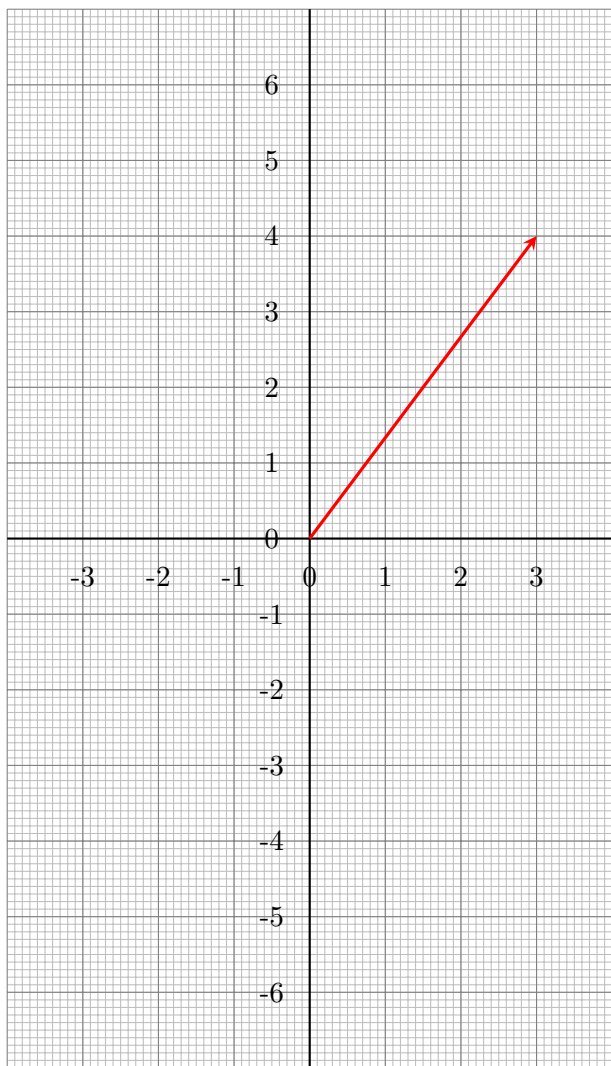


b)

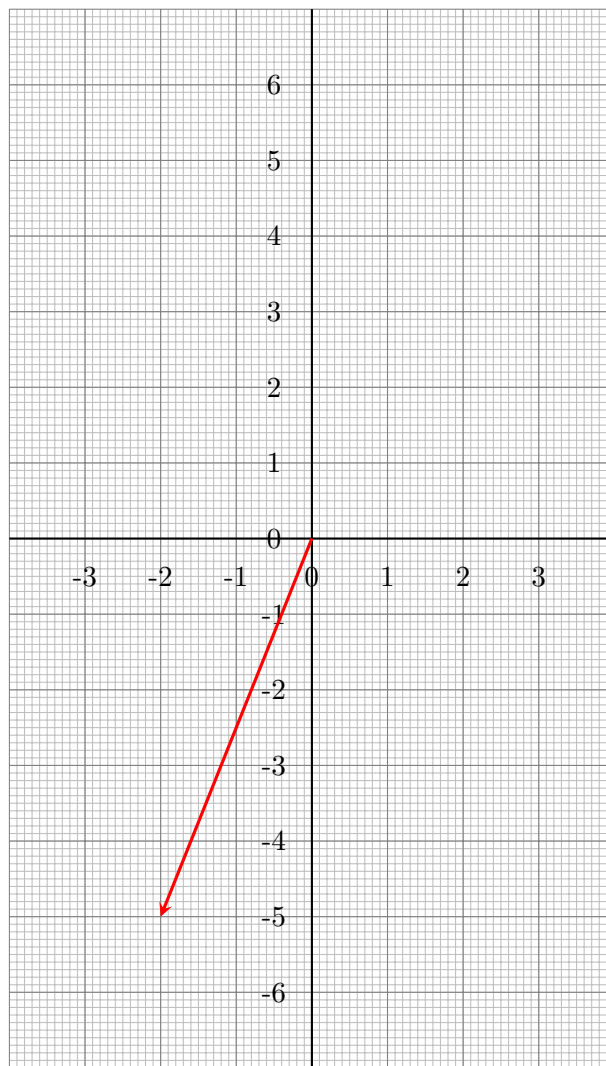


Write in the form  $a\mathbf{i} + b\mathbf{j}$ :

a)

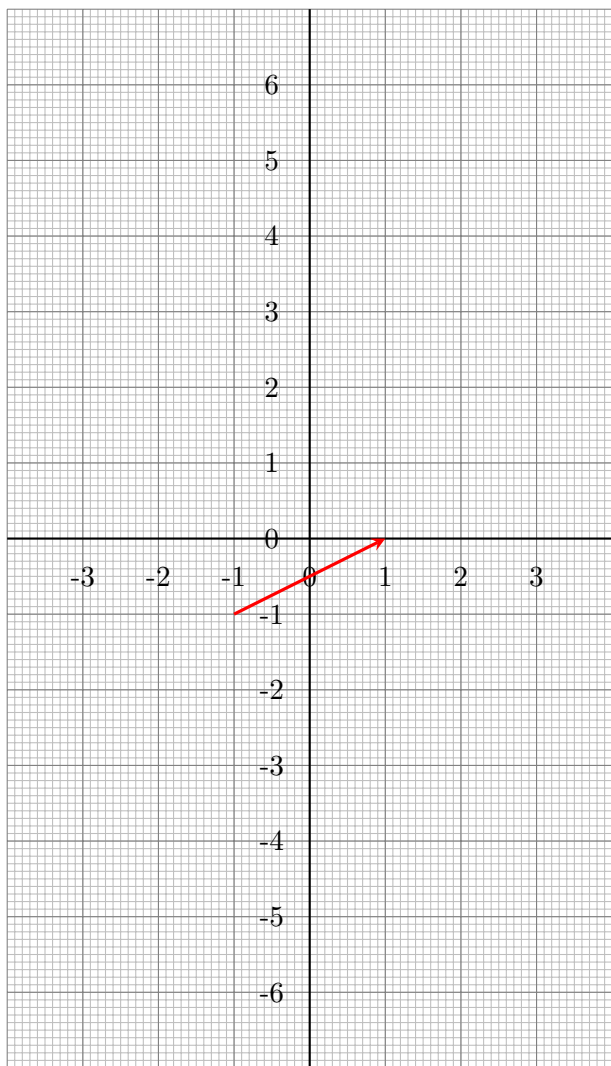


b)

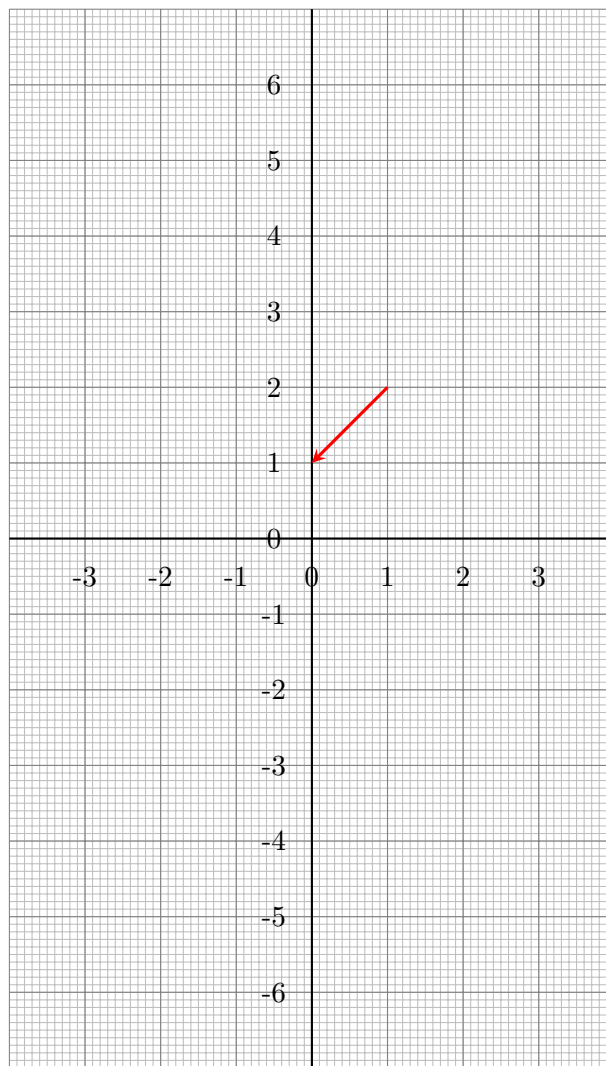


Write in the form  $a\mathbf{i} + b\mathbf{j}$ :

a)



b)



Write as column vectors:

a)  $3\mathbf{i} + 4\mathbf{j}$

b)  $3\mathbf{i}$

c)  $-4\mathbf{j}$

d)  $-3\mathbf{i} + \mathbf{j}$

e)  $3.1234\mathbf{i}$

f)  $-\mathbf{j}$

Work out the matrix calculations

a)  $\begin{pmatrix} 4 \\ -2 \end{pmatrix} + \begin{pmatrix} -3 \\ -1 \end{pmatrix}$

b)  $\begin{pmatrix} 14 \\ -2 \end{pmatrix} - \begin{pmatrix} 23 \\ 1 \end{pmatrix}$

c)  $4 \begin{pmatrix} 4 \\ -2 \end{pmatrix} + 2 \begin{pmatrix} -3 \\ -1 \end{pmatrix}$

d)  $-2 \begin{pmatrix} 14 \\ -2 \end{pmatrix} - \begin{pmatrix} 23 \\ 1 \end{pmatrix}$

e)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} + \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$

f)  $\begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} + \begin{pmatrix} -5 & 6 \\ -7 & 8 \end{pmatrix}$

Work out the matrix calculations

a)  $-2 \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} + 3 \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$

b)  $-\begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} - \begin{pmatrix} -5 & 6 \\ -7 & 8 \end{pmatrix}$

c)  $-2 \begin{pmatrix} 1 & 2a \\ 3b & 4 \end{pmatrix} + 3 \begin{pmatrix} 5 & 6c \\ 7 & 8 \end{pmatrix}$

d)  $-x \begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} - \begin{pmatrix} -5 & 6 \\ -7 & 8 \end{pmatrix}$

e)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 \\ 7 \end{pmatrix}$

f)  $\begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} \begin{pmatrix} -2 \\ 0 \end{pmatrix}$

Work out the matrix calculations

a)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix}$

b)  $\begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} \begin{pmatrix} -2x+2 \\ z \end{pmatrix}$

c)  $\begin{pmatrix} 1 & 2 \end{pmatrix} \begin{pmatrix} 3 \\ 4 \end{pmatrix}$

d)  $\begin{pmatrix} 1 & -2 \end{pmatrix} \begin{pmatrix} -2x \\ z \end{pmatrix}$

e)  $\begin{pmatrix} 1 & 2 \end{pmatrix} \begin{pmatrix} x & 4 \\ y & 7 \end{pmatrix}$

f)  $\begin{pmatrix} 1 & -2 \end{pmatrix} \begin{pmatrix} -2 & 2 \\ -15 & 3 \end{pmatrix}$



Work out the matrix calculations

a)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix}$

b)  $\begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix} \begin{pmatrix} -5 & 6 \\ -7 & 8 \end{pmatrix}$

c)  $\begin{pmatrix} 1 & 0 \\ 1 & 2 \end{pmatrix} \begin{pmatrix} 0 & 1 \\ 2 & 1 \end{pmatrix} \begin{pmatrix} 3 & 1 \\ 0 & 2 \end{pmatrix}$

d)  $\begin{pmatrix} 1 & -2 \\ 1 & 2 \end{pmatrix} \begin{pmatrix} -1 & 0 \\ -1 & 2 \end{pmatrix} \begin{pmatrix} 3 & 0 \\ 1 & 1 \end{pmatrix}$

e)  $\begin{pmatrix} 5 & 6 \\ 7 & 8 \end{pmatrix} \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

f)  $\begin{pmatrix} -5 & 6 \\ -7 & 8 \end{pmatrix} \begin{pmatrix} 1 & -2 \\ 3 & -4 \end{pmatrix}$

Write down the order of each matrix

a)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

b)  $\begin{pmatrix} 1 & -2 \end{pmatrix}$

c)  $\begin{pmatrix} 1 \\ 3 \end{pmatrix}$

d)  $\begin{pmatrix} 1 & -2 & 3 \\ 5 & 6 & 7 \end{pmatrix}$

Work out the values of x and y

a)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} 5 \\ 11 \end{pmatrix}$

b)  $\begin{pmatrix} 1 & -2 \\ -3 & 4 \end{pmatrix} \begin{pmatrix} x \\ y \end{pmatrix} = \begin{pmatrix} -3 \\ 7 \end{pmatrix}$

Work out the matrix multiplications

a)  $\begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

b)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 0 & 0 \\ 0 & 0 \end{pmatrix}$

c)  $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$

d)  $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix} \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$