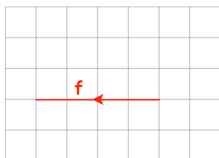
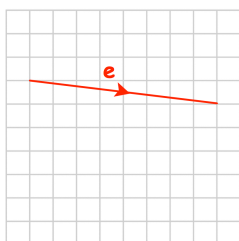
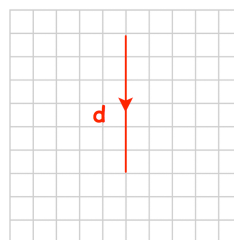
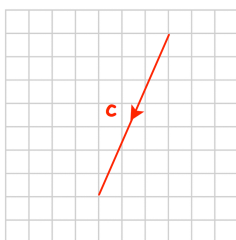
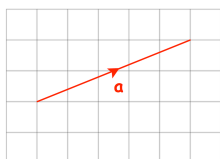


Column Vectors - Answers

Workout

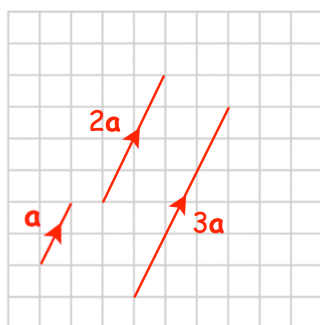
Question 1: (a) $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ (b) $\begin{pmatrix} 1 \\ -2 \end{pmatrix}$ (c) $\begin{pmatrix} -4 \\ 2 \end{pmatrix}$ (d) $\begin{pmatrix} 0 \\ -1 \end{pmatrix}$

Question 2:



Question 3:

(a) and (c)



(b) $\begin{pmatrix} 2 \\ 4 \end{pmatrix}$

(d) $\begin{pmatrix} 3 \\ 6 \end{pmatrix}$

(e) $\begin{pmatrix} 5 \\ 10 \end{pmatrix}$

Question 4:

(a) $\begin{pmatrix} 18 \\ 12 \end{pmatrix}$ (b) $\begin{pmatrix} 6 \\ -4 \end{pmatrix}$ (c) $\begin{pmatrix} -45 \\ -35 \end{pmatrix}$ (d) $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ (e) $\begin{pmatrix} 0.75 \\ -0.5 \end{pmatrix}$

Question 5:

(a) $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$ (b) $\begin{pmatrix} -2 \\ -5 \end{pmatrix}$ (c) $\begin{pmatrix} 3 \\ -1 \end{pmatrix}$ (d) $\begin{pmatrix} -3 \\ 1 \end{pmatrix}$

Question 6:

(a) $\begin{pmatrix} -2 \\ -11 \end{pmatrix}$ (b) $\begin{pmatrix} 8 \\ -3 \end{pmatrix}$ (c) $\begin{pmatrix} 4 \\ 6 \end{pmatrix}$

(d) $\begin{pmatrix} -4 \\ -22 \end{pmatrix}$ (e) $\begin{pmatrix} 32 \\ -12 \end{pmatrix}$ (f) $\begin{pmatrix} 4 \\ -1.5 \end{pmatrix}$

Question 7:

(a) $\begin{pmatrix} 1 \\ 2 \end{pmatrix}$ (b) $\begin{pmatrix} 3 \\ 1 \end{pmatrix}$ (c) $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$

Question 8:

(a) $\begin{pmatrix} 5 \\ 7 \end{pmatrix}$ (b) $\begin{pmatrix} 3 \\ 11 \end{pmatrix}$ (c) $\begin{pmatrix} 4 \\ 4 \end{pmatrix}$ (d) $\begin{pmatrix} -3 \\ 7 \end{pmatrix}$

(e) $\begin{pmatrix} 1 \\ 5 \end{pmatrix}$ (f) $\begin{pmatrix} -1 \\ 3 \end{pmatrix}$ (g) $\begin{pmatrix} -5 \\ 1 \end{pmatrix}$ (h) $\begin{pmatrix} 8 \\ 7 \end{pmatrix}$

(i) $\begin{pmatrix} 5 \\ 19 \end{pmatrix}$ (j) $\begin{pmatrix} 13 \\ 35 \end{pmatrix}$ (k) $\begin{pmatrix} 11 \\ 40 \end{pmatrix}$ (l) $\begin{pmatrix} 3 \\ 31 \end{pmatrix}$

(m) $\begin{pmatrix} 1 \\ -4 \end{pmatrix}$ (n) $\begin{pmatrix} -20 \\ -7 \end{pmatrix}$ (o) $\begin{pmatrix} 3 \\ 2 \end{pmatrix}$ (p) $\begin{pmatrix} -18 \\ 3 \end{pmatrix}$

Question 9: $\begin{pmatrix} 3 \\ 0 \end{pmatrix}$

Question 10:

(a) $\begin{pmatrix} 5 \\ 12 \end{pmatrix}$ (b) $\begin{pmatrix} 11 \\ 7 \end{pmatrix}$ (c) $\begin{pmatrix} 6 \\ -5 \end{pmatrix}$ (d) $\begin{pmatrix} -6 \\ 5 \end{pmatrix}$

(e) $\begin{pmatrix} 10 \\ 20 \end{pmatrix}$ (f) $\begin{pmatrix} -15 \\ -12 \end{pmatrix}$ (g) $\begin{pmatrix} -10 \\ -4 \end{pmatrix}$ (h) $\begin{pmatrix} 29 \\ 42 \end{pmatrix}$

(i) $\begin{pmatrix} -12 \\ 10 \end{pmatrix}$ (j) $\begin{pmatrix} -6 \\ -42 \end{pmatrix}$ (k) $\begin{pmatrix} -22 \\ -27 \end{pmatrix}$ (l) $\begin{pmatrix} -76 \\ -113 \end{pmatrix}$

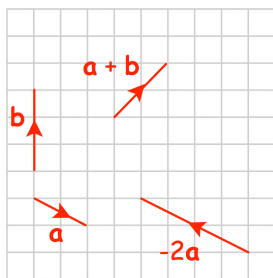
Question 11: $\begin{pmatrix} 14 \\ 9 \end{pmatrix}$

Apply

Question 1: Mark has drawn 2 right and 3 up, rather than 3 right and 2 up.

Question 2: Abby has drawn 5 left and 3 up, rather than 5 right and 3 down.
(or the arrow is the wrong way round)

Question 3: (a)



(b) $\begin{pmatrix} 6 \\ 9 \end{pmatrix}$

Question 4: $p = -8$ $q = 6$

Question 5: $p = -0.5$ $q = 15$