Column Vectors *fluency*

Find $a + b$

1 $a = \begin{pmatrix} 3 \\ 2 \end{pmatrix}, b = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$

2 $a = \begin{pmatrix} 5 \\ 0 \end{pmatrix}, b = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

3 $a = \begin{pmatrix} 4 \\ -1 \end{pmatrix}, b = \begin{pmatrix} 2 \\ 6 \end{pmatrix}$

4 $a = \begin{pmatrix} -3 \\ 2 \end{pmatrix}, b = \begin{pmatrix} 5 \\ 1 \end{pmatrix}$

5 $a = \begin{pmatrix} 0 \\ -4 \end{pmatrix}, b = \begin{pmatrix} -2 \\ -3 \end{pmatrix}$

6 $a = \begin{pmatrix} 6 \\ 5 \end{pmatrix}, b = \begin{pmatrix} -6 \\ 2 \end{pmatrix}$

Find $a - b$

7 $a = \begin{pmatrix} 5 \\ 7 \end{pmatrix}, b = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

8 $a = \begin{pmatrix} 4 \\ 1 \end{pmatrix}, b = \begin{pmatrix} 6 \\ 2 \end{pmatrix}$

9 $a = \begin{pmatrix} 3 \\ -2 \end{pmatrix}, b = \begin{pmatrix} 1 \\ 4 \end{pmatrix}$

10 $a = \begin{pmatrix} -2 \\ 5 \end{pmatrix}, b = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$

11 $a = \begin{pmatrix} 0 \\ 0 \end{pmatrix}, b = \begin{pmatrix} 4 \\ -3 \end{pmatrix}$

12 $a = \begin{pmatrix} -5 \\ -4 \end{pmatrix}, b = \begin{pmatrix} -7 \\ 2 \end{pmatrix}$

Find the vector

13 $3\begin{pmatrix} 3 \\ -2 \end{pmatrix}$

14 $2\begin{pmatrix} -4 \\ 5 \end{pmatrix}$

15 $5\begin{pmatrix} 0 \\ -3 \end{pmatrix}$

16 $-2\begin{pmatrix} 3 \\ 1 \end{pmatrix}$

17 $0.5\begin{pmatrix} 8 \\ -6 \end{pmatrix}$

18 $-3\begin{pmatrix} -2 \\ 4 \end{pmatrix}$

Find 2a − 3b

19 $a = \begin{pmatrix} 3 \\ 2 \end{pmatrix}, b = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$

20 $a = \begin{pmatrix} 4 \\ -1 \end{pmatrix}, b = \begin{pmatrix} 2 \\ 3 \end{pmatrix}$

21 $a = \begin{pmatrix} -2 \\ 5 \end{pmatrix}, b = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$

22 $a = \begin{pmatrix} 5 \\ 0 \end{pmatrix}, b = \begin{pmatrix} 3 \\ 4 \end{pmatrix}$

23 $a = \begin{pmatrix} 1 \\ -4 \end{pmatrix}, b = \begin{pmatrix} -1 \\ -3 \end{pmatrix}$

24 $a = \begin{pmatrix} -3 \\ -2 \end{pmatrix}, b = \begin{pmatrix} -4 \\ 1 \end{pmatrix}$

Find the vector from A to B

25 A(2, 3), B(5, 7)

26 A(1, 6), B(4, 2)

27 A(−2, 1), B(3, −4)

28 A(5, −3), B(−1, 2)

29 A(0, 0), B(−6, 9)

30 A(−4, −5), B(−1, −2)