

MS-A0001 - Matrix Algebra, 26.10.2020-08.12.2020

Started on	Thursday, 29 October 2020, 3:50 PM
State	Finished
Completed on	Thursday, 29 October 2020, 3:52 PM
Time taken	1 min 25 secs
Grade	2.00 out of 2.00 (100%)

Question 1

Flag question

Mark 1.00 out of 1.00

Correct

Compute the following vector additions.

$(0, 3) + (6, 3) = \left( \boxed{6}, \boxed{6} \right)$

$(0, 1) + (-2, -2) = \left( \boxed{-2}, \boxed{-1} \right)$

Your answer is correct!  
Your answer is correct!  
Marks for this submission: 0.50/0.50.  
Your answer is correct!  
Marks for this submission: 0.50/0.50.

**Worked solution:**  
Vector addition can is calculated by adding the corresponding elements of the vectors.

$$(0, 3) + (6, 3) = (0 + 6, 3 + 3) = (6, 6)$$

and

$$(0, 1) + (-2, -2) = (0 + (-2), 1 + (-2)) = (-2, -1).$$

A correct answer is 6, which can be typed in as follows: 6  
A correct answer is 6, which can be typed in as follows: 6  
A correct answer is −2, which can be typed in as follows: -2  
A correct answer is −1, which can be typed in as follows: -1

Question 2

Flag question

Mark 1.00 out of 1.00

Correct

Solve the pair of equations using any method.

$$\begin{cases} 4 \cdot x + 5 \cdot y = 3 \\ 6 \cdot x + 6 \cdot y = 2 \end{cases}$$

$x = \boxed{-4/3}$   
 $y = \boxed{5/3}$

Your answer is correct!  
The values of  $y$  and  $x$  are a solution for the system!

$$\begin{cases} 3 = 3 \\ 2 = 2 \end{cases}$$

Marks for this submission: 1.00/1.00.

**Worked solution:**  
$$\begin{cases} 4x + 5y = 3 \\ 6x + 6y = 2 \end{cases}$$

Let's begin by solving for  $y$  in the first equation.

$$\begin{aligned} 4x + 5y &= 3 \\ \Leftrightarrow 5y &= 3 - 4x \\ \Leftrightarrow y &= \frac{3}{5} - \frac{4}{5}x \end{aligned}$$

Next we substitute the value into the second equation:

$$\begin{aligned} 6x + 6y &= 2 \\ \Leftrightarrow 6x + 6\left(\frac{3}{5} - \frac{4}{5}x\right) &= 2 \\ \Leftrightarrow 6x + \frac{18}{5} - \frac{24}{5}x &= 2 \\ \Leftrightarrow \left(6 - \frac{24}{5}\right)x + \frac{18}{5} &= 2 \\ \Leftrightarrow \frac{6}{5}x &= -\frac{8}{5} \\ \Leftrightarrow x &= -\frac{4}{3} \end{aligned}$$

Finally we calculate the value of  $y$ :

$$y = \frac{3}{5} - \frac{4}{5}x = \frac{3}{5} + \frac{16}{15} = \frac{5}{3}$$

The solution is

$$(x, y) = \left(-\frac{4}{3}, \frac{5}{3}\right).$$

A correct answer is −4/3, which can be typed in as follows: -(4/3)  
A correct answer is 5/3, which can be typed in as follows: 5/3

Finish review



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