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**%)

Quiz navigation

1 2

Finish review

Question **1**

Flag question Mark 1.00 out of 1.00 Correct

Compute the following vector additions.

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

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

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.

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

$x =$ -4/3

$y =$ 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 $-\frac{4}{3}$, which can be typed in as follows: -(4/3)

A correct answer is $\frac{5}{3}$, which can be typed in as follows: 5/3

Finish review

◄ Problem Sheet 5

Lecture 2 ►