

Question 1

Not yet
answered

Marked out of
1.00

The Det of a matrix $M = \begin{bmatrix} 0 & 4 & 0 \\ 2 & 50 & 2 \\ 1 & -2 & -8 \end{bmatrix}$

- ☐ a. 70
- ☒ b. 72
- ☐ c. 50
- ☐ d. None

Question 1

Not yet
answered

Marked out of
2.00

The dimensions of the following matrix are $n \times m$.

$$\begin{bmatrix} a_{11} & a_{12} \dots & a_{ij} & a_{in} \\ a_{21} & a_{22} \dots & a_{ij} & a_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ a_{m1} & a_{m2} & a_{ij} & a_{mn} \end{bmatrix}$$

(2 points)

Select one:

☐ True

☒ False

Question 1

Not yet
answered

Marked out of
2.00

The dimensions of the following matrix are 4×2 .

$$\begin{bmatrix} 9 & 7 & -1 & 7 \\ 3 & -4 & 2 & 9 \end{bmatrix}$$

(2 points)

Select one:

☐ True

☒ False

Question 1

Not yet
answered

Marked out of
2.00

$$\text{If } A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}, \text{ then } A^{-1} = \begin{bmatrix} \frac{d}{|A|} & \frac{-b}{|A|} \\ \frac{-c}{|A|} & \frac{a}{|A|} \end{bmatrix}$$

Select one:

☒ True

☐ False

Question 1

Not yet
answered

Marked out of
2.00

The following matrix represents

$$\begin{bmatrix} 1 & 7 & 4 & 4 \\ 0 & 1 & 7 & 4 \\ 0 & 0 & 7 & 8 \\ 0 & 0 & 0 & 3 \end{bmatrix}$$

Select one:

- ☐ a. Identity matrix
- ☐ b. Diagonal matrix
- ☒ c. Upper triangular matrix
- ☐ d. Lower triangular matrix

Question 1

Not yet
answered

Marked out of
1.00

Find x and y

$$2 \begin{bmatrix} 5 & x \\ y-4 & 6 \end{bmatrix} + \begin{bmatrix} -4 & 1 \\ 3 & 2 \end{bmatrix} = \begin{bmatrix} 6 & 3 \\ 10 & 14 \end{bmatrix}$$

☐ a. $x=-1, y=9$

☐ b. $x=-1, y=-9$

☐ c. $x=1, y=-9$

☒ d. $x=1, y=9$

☐ e. None

Question 1

Not yet
answered

Marked out of
2.00

For the following linear system:

$$6x - 3y + 12z = -9$$

$$3x - 6y - 30z = -18$$

$$3x + 4z = 7$$

The augmented matrix for the above system is:

$$\left[\begin{array}{ccc|c} 6 & -3 & 12 & -9 \\ 3 & -6 & -30 & -18 \\ 3 & 0 & 4 & 7 \end{array} \right]$$

The values of x, y, z using Gauss elimination method are

$$x = 3, y = 7, z = -0.5$$

(2 points)

Select one:

☒ True

☐ False

Question 1

Not yet
answered

Marked out of
1.00

Determine the number of solutions of L.S.

$$x-y=12$$

$$x+y=0$$

- ☐ a. one solution
- ☐ b. many solutions
- ☐ c. None
- ☒ d. no solution

Question 1

Not yet
answered

Marked out of
2.00

Solve Using

Gaussian-Jordan Elimination.

$$11x + y = 172$$

$$3x + y = 100$$

The value of x is:

☐ a. 99

☐ b. 11

☐ c. 3

☒ d. 9

☐ e. 73

Question 1

Not yet
answered

Marked out of
2.00

$$\text{If } A = \begin{bmatrix} 2 & 7 & -2 \\ 0 & 1 & 4 \\ 3 & 3 & 3 \end{bmatrix}, \text{ then } m_{11} = 2$$

(1 points)

Select one:

☐ True

☒ False

Question 1

Not yet
answered

Marked out of
1.00

The addition of matrices is only possible if they are of the same order.

☒ True

☐ False

Question 1

Not yet
answered

Marked out of
3.00

Calculate the determinant of the matrix I : (3 points)

$$I = \begin{bmatrix} 3 & 0 & 1 \\ 0 & 2 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

☐ a. 8

☒ b. 6

☐ c. 7

☐ d. 4

☐ e. 3

Question 1

Not yet
answered

Marked out of
2.00

Which one of the following is a scalar matrix?

(2 points)

☒ a. $\begin{pmatrix} 6 & 0 & 0 \\ 0 & 6 & 0 \\ 0 & 0 & 6 \end{pmatrix}$

☐ b. $\begin{pmatrix} 5 & 0 & 0 \\ 0 & -5 & 0 \\ 0 & 0 & 5 \end{pmatrix}$

☐ c. $\begin{pmatrix} \frac{1}{2} & 0 & 0 \\ 0 & 1\frac{1}{2} & 0 \\ 0 & 0 & 2\frac{1}{2} \end{pmatrix}$

☐ d. $\begin{pmatrix} 5 & 0 & 0 \\ 0 & 6 & 0 \\ 0 & 0 & 7 \end{pmatrix}$

Question 1

Not yet
answered

Marked out of
1.00

Find the values of x, y, z in the following system of equations by Gauss Elimination Method.

$$2x + y - 3z = -10$$

$$-2y + z = -2$$

$$z = 6$$

☐ a. 2,7,6

☐ b. 3,4,6

☒ c. 2,4,6

☐ d. None

Question 1

Not yet
answered

Marked out of
2.00

Truncation and Round off to Two Decimal Places Given the following number:

9.138890578

Answer:

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Technical information ▼



Behaviour being used: Deferred feedback

Minimum fraction: 0

Maximum fraction: 1

Question variant: 1

Question summary: Truncation and Round off to Two Decimal Places Given the following number: 9.138890578

Right answer summary: 9.13, 9.14

Question 1Not yet
answeredMarked out of
2.00

Solve the equation $5 \sin^2 x - 8 \cos^5 x = 0$ in the interval $[0.5, 1.5]$ using the Newton-Raphson method with an error threshold of less than 0.0007.

$$f'(x) = 10 \sin x \cos x + 40 \cos^4 x \sin x$$

In the Newton-Raphson method, you iteratively update your estimate of the root using the formula:

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

the question is repeated for

Solve the equation $5 \sin^2 x - 8 \cos^5 x = 0$ in the interval $[0.5, 1.5]$ using the Newton-Raphson method with an error threshold of less than 0.0007.

- ☐ a. 0.5378
- ☒ b. 0.6935
- ☐ c. 0.4678
- ☐ d. 0.5164

Question 1

Not yet
answered

Marked out of
1.00

Calculate the approximate value of the integral of this function ($x/(4+x^4)$) from 0 to 8 using the trapezoidal rule with 4 intervals ($n = 4$).

The result of integration is (truncate the answer to two decimal digits in the form d.dd):

$$\int \frac{x}{4 + x^4} dx$$

0,24

]]>

Answer:

Question 1

Not yet
answered

Marked out of
2.00

Truncation and Round off to Two Decimal Places Given the following number:

6.138890578

Answer:

Start again

Save

Fill in correct responses

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Technical information ▼



Behaviour being used: Deferred feedback

Minimum fraction: 0

Maximum fraction: 1

Question variant: 1

Question summary: Truncation and Round off to Two Decimal Places Given the following number: 6.138890578

Right answer summary: 6.13, 6.14

Question 1Not yet
answeredMarked out of
1.00

Calculate the approximate value of the integral of this function ($x/(4+x^4)$) from 1 to 9 using the trapezoidal rule with 4 intervals ($n = 4$).
The result of integration is (truncate the answer to two decimal digits in the form d.dd):

$$\int \frac{x}{4 + x^4} dx$$

0,29

]]>

Answer:

Question 1

Not yet

answered

Marked out of
2.00

Integrate the function $1/(1+x)$ from 0 to 4 using the trapezoidal rule with $n = 4$ trapezoids. The result of integration is (truncate the answer to three decimal digits in the form d.ddd):

Answer:

1.154

Question 1

Not yet
answered

Marked out of
1.00

Calculate the approximate value of the integral of this function ($x/(4+x^4)$) from 1 to 10 using the trapezoidal rule with 3 intervals ($n = 3$).
The result of integration is (truncate the answer to two decimal digits in the form d.dd):

$$\int \frac{x}{4 + x^4} dx$$

]]>

Answer:

0.36

Question 1Not yet
answeredMarked out of
1.00

Calculate the approximate value of the integral of this function ($x/(4+x^4)$) from 0 to 9 using the trapezoidal rule with 3 intervals ($n = 3$).
The result of integration is (truncate the answer to two decimal digits in the form d.dd):

$$\int \frac{x}{4 + x^4} dx$$

0,12

]]>

Answer:

Question 1

Not yet
answered

Marked out of
1.00

Estimate the minimum number of iterations 'n' required to achieve a precision level of $\epsilon = 0.001$ with the bisection method for the equation $f(x) = x^3 - 7x^2 + 14x - 6$, starting with the interval $[0, 1]$.

Use the formula: $n \geq (\log(1 - 0) - \log(0.001))/\log(2)$

Note: The answer is a number.

examples: 9 or 87

]]>

Answer:

10

Question 1Not yet
answeredMarked out of
2.00

The following data of the velocity of a body is given as a function of time.

| | | | | | |
|----------------|----|----|----|----|-----|
| Time (s) | 10 | 15 | 18 | 22 | 24 |
| Velocity (m/s) | 22 | 24 | 37 | 25 | 123 |

A quadratic Lagrange interpolation is found using three data points, $t=15, 18$ and 22 . From this information, at what of the times given in seconds is the velocity of the body 26 m/s during the time interval of $t=15$ to 22 seconds.

- ☐ a. 22.1
- ☐ b. 20.6
- ☐ c. 21.6
- ☒ d. 21.8
- ☐ e. None of them

Question 1

Not yet
answered

Marked out of
1.00

The equation $f(x)$ is given as $x^3 - x^2 + 4x - 4 = 0$. Considering the initial approximation at $x=2$ then the value of next approximation correct upto 2 decimal places is given as _____

- ☐ a. 1.00
- ☐ b. 0.67
- ☐ c. None
- ☐ d. 1.5
- ☒ e. 1.33

Question 1

Not yet
answered

Marked out of
1.00

Calculate the minimum number of iterations 'n' required to approximate the root within an error of $\epsilon = 0.001$ using the bisection method over the interval $[0, 1]$ for the function $f(x) = x^3 - 7x^2 + 14x - 6$.

Use the formula: $n \geq (\log(1 - 0) - \log(0.001))/\log(2)$

Note: The answer is a number.
examples: 9 or 87

||>

Answer:

10

Question 1

Not yet
answered

Marked out of
1.00

What is the least number of iterations 'n' that the bisection method would need to find the root of $f(x) = x^3 - 7x^2 + 14x - 6$ to a precision of $\epsilon = 0.001$ within the interval $[0, 1]$?

Use the formula: $n \geq (\log(1 - 0) - \log(0.001))/\log(2)$

Note: The answer is a number.

examples: 9 or 87

]]>

Answer:

10

Question 1

Not yet
answered

Marked out of
2.00

Truncation and Round off to Two Decimal Places Given the following number:

5.129890578

Answer:

Start again

Save

Fill in correct responses

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Technical information ▼



Behaviour being used: Deferred feedback

Minimum fraction: 0

Maximum fraction: 1

Question variant: 1

Question summary: Truncation and Round off to Two Decimal Places Given the following number; 5.129890578

Right answer summary: 5.12, 5.13

Question 1

Not yet
answered

Marked out of
2.00

Use numerical differentiation to find the derivative of $f(x) = 2^x$ at $x = 5$. use central difference with $h = 1$.

The answer should have one decimal number (d.d like 6.0, 5.7, 7.9)

Answer:

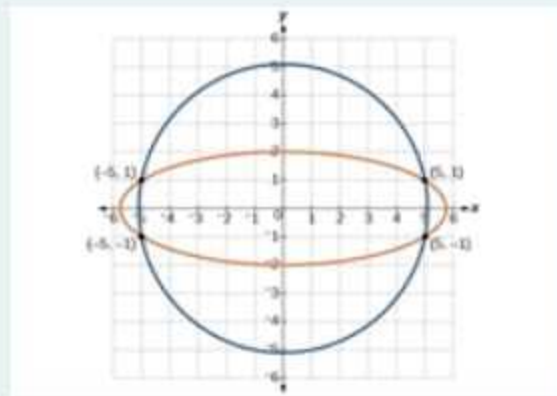
24.0

Question 1

Not yet
answered

Marked out of
2.00

How many solutions we have in the following graph which represent an intersection of a circle and an ellipse?



Select one:

- ☐ a. 1
- ☐ b. 2
- ☐ c. 0
- ☒ d. 4

Question 1

Not yet
answered

Marked out of
1.00

Determine 'n', the minimum number of iterations needed to ensure a precision of $\epsilon = 0.001$ in the interval $[0, 1]$ using the bisection method for the function $f(x) = x^3 - 7x^2 + 14x - 6$.

Use the formula: $n \geq (\log(1 - 0) - \log(0.001))/\log(2)$

Note: The answer is a number.
examples: 9 or 87

]]>

Answer:

10

Question 1

Not yet
answered

Marked out of
2.00

Find the Newton interpolating polynomial for the points (0,1), (1,2), (2,4), and (3,6).

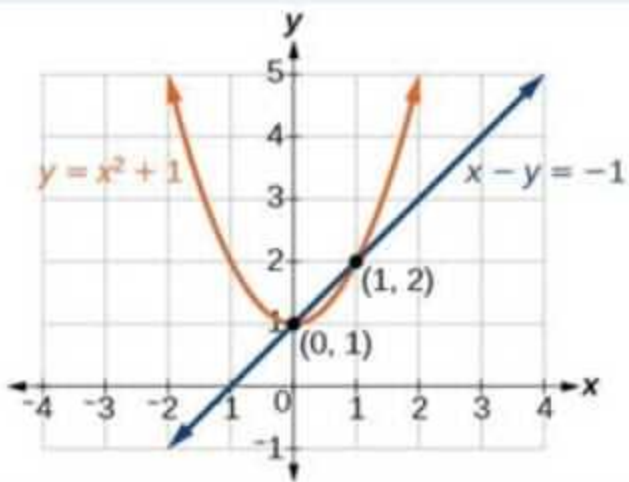
- ☐ a. $P(x) = -x((65x) + 1)$
- ☒ b. $P(x) = -x((61x - 65)(x - 1) - 1) + 1$
- ☐ c. $P(x) = ((61x - 65) + 1)$
- ☐ d. $P(x) = -x((61x)(x - 1) - 1)$
- ☐ e. $P(x) = -((60x - 60)(x) - 1)$

Question 1

Not yet
answered

Marked out of
2.00

How many solutions we have in the following graph which represent an intersection of a parabola and a line?



Select one:

- ☐ a. 1
- ☐ b. 4
- ☒ c. 2
- ☐ d. 3

Question 1

Not yet
answered

Marked out of
1.00

The coefficient of the x^5 (x to the power 5) term in the Taylor's-Maclaurin polynomial for $\sin(2x)$ is

Hint:

1. $f(x) = \sin(2x)$
2. $f'(x) = 2 \cos(2x)$
3. $f''(x) = -4 \sin(2x)$
4. $f'''(x) = -8 \cos(2x)$
5. $f^{(4)}(x) = 16 \sin(2x)$
6. $f^{(5)}(x) = 32 \cos(2x)$
7. $f^{(6)}(x) = -64 \sin(2x)$

- ☐ a. 0
- ☐ b. None of them
- ☐ c. 0.008
- ☒ d. 0.266
- ☐ e. 0.016

Question 1

Not yet
answered

Marked out of
1.00

Given $f(3) = 6$, $f'(3) = 8$, $f''(3) = 11$, and all other higher order derivatives of $f(x)$ are zero at $x = 3$, and assuming the function and all its derivatives exist and are continuous between $x = 3$ and $x = 7$, the value of $f(7)$ is

- ☐ a. none of them
- ☐ b. 331.5
- ☐ c. 38.0
- ☐ d. 79.5
- ☒ e. 126.0

Question 1

Not yet
answered

Marked out of
2.00

Solve $2x^3 - 2.5x - 5 = 0$ for the root $[1, 2]$ using Newton's Method and starting initial point is $x_0 = 2$

The value for X_1 after the first iteration

The value for X_2 after the second iteration

The value for X_3 after the third iteration

1**2****3**

Question 1

Not yet
answered

Marked out of
1.00

Identify the minimum iterations 'n' necessary to obtain a solution within $\epsilon = 0.001$ when applying the bisection method from the starting interval $[0, 1]$ for the function $f(x) = x^3 - 7x^2 + 14x - 6$.

Use the formula: $n \geq (\log(1 - 0) - \log(0.001))/\log(2)$

Note: The answer is a number.

examples: 9 or 87

]]>

Answer:

10

Question 1

Not yet
answered

Marked out of
2.00

The equation $f(x)$ is given as $x^3 - x^2 + 4x - 4 = 0$. Considering the initial approximation at $x=2$ then the value of next approximation correct upto 2 decimal places is given as _____

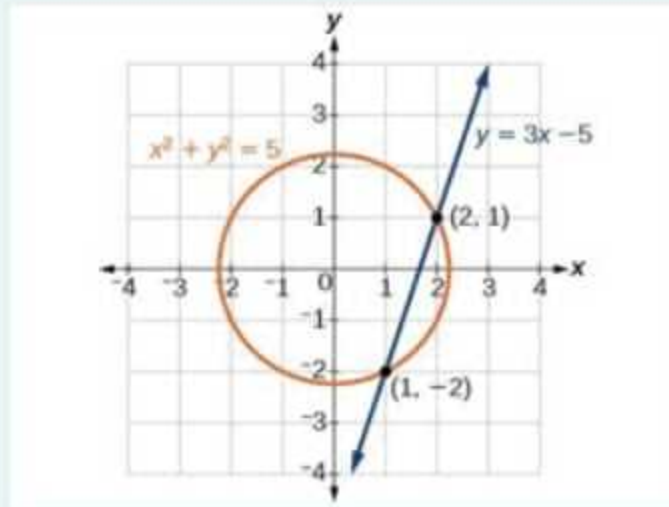
- ☐ a. 1.00
- ☐ b. 0.67
- ☒ c. 1.33
- ☐ d. 1.50

Question 1

Not yet
answered

Marked out of
2.00

How many solutions we have in the following graph, which represents an intersection of a circle and a line?



Select one:

☐ a. 0

☐ b. 1

☒ c. 2

☐ d. 4

Question 1

Not yet

answered

Marked out of

1.00

The equation $f(x)$ is given as $x^2-4=0$. Considering the initial approximation at $x = 6$, the value of next approximation using newton method, corrected up to 2 decimal places, is given as _____

☐ a. 2.33

☒ b. 3.33

☐ c. 1.33

☐ d. None

☐ e. 4.33

Question 1

Not yet
answered

Marked out of
2.00

The function $f(x) = e^x$ using Taylor 5th degree polynomial at $x_0=0$

☒ a.

$$f(x) = 1 + x + \frac{x^2}{2} + \frac{x^3}{6} + \frac{x^4}{24} + \frac{x^5}{120}$$

☐ b.

$$f(x) = 1 + \frac{x^2}{2} - \frac{x^3}{6} + \frac{x^4}{24} + \frac{x^5}{120}$$

☐ c. none

☐ d.

$$f(x) = x + x^2 + x^3 + x^4 + x^5$$

☐ e.

$$f(x) = \frac{x^2}{2} - \frac{x^3}{6} + \frac{x^4}{24} + \frac{x^5}{120}$$

Question 1Not yet
answeredMarked out of
1.00

Calculate the approximate value of the integral of this function ($x/(4+x^4)$) from 2 to 10 using the trapezoidal rule with 4 intervals ($n = 4$).
The result of integration is (truncate the answer to two decimal digits in the form d.dd):

$$\int \frac{x}{4 + x^4} dx$$

]]>

Answer:

0.14

Question 1

Not yet
answered

Marked out of
1.00

The equation $f(x)$ is given as $x^2-4=0$. Considering the initial approximation at $x=6$ then the value of x_1 is given as _____

- ☐ a. None of them
- ☐ b. Diameter Method
- ☒ c. 10/3
- ☐ d. Secant Method
- ☐ e. Linear Method

Question 1

Not yet
answered

Marked out of
2.00

Truncation and Round off to Two Decimal Places Given the following number:

7.138890578

Answer:

Start again

Save

Fill in correct responses

Submit and finish

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Technical information ▼



Behaviour being used: Deferred feedback

Minimum fraction: 0

Maximum fraction: 1

Question variant: 1

Question summary: Truncation and Round off to Two Decimal Places Given the following number: 7.138890578

Right answer summary: 7.13, 7.14

Response summary:

Question 1

Not yet
answered

Marked out of
2.00

Integrate the function $1/(1+x)$ from 0 to 4 using the trapezoidal rule with $n = 4$ trapezoids. The result of integration is (truncate the answer to two decimal digits in the form d.dd):

Answer:

1.15

Question 1

Not yet
answered

Marked out of
3.00

What is the determinant of the matrix $A = \begin{bmatrix} 5 & 1 & -2 \\ -1 & 0 & 4 \\ 2 & -3 & 3 \end{bmatrix}$?

(3 points)

- ☐ a. 55
- ☒ b. 65
- ☐ c. 17
- ☐ d. 43
- ☐ e. -65

Question 1

Not yet
answered

Marked out of
2.00

Which one of the following is not an identity matrix?

(2 points)

☐ a. $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$

☒ b. $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

☐ c. $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

☐ d. $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$

Question 1

Not yet
answered

Marked out of
3.00

What is the determinant of the matrix $A = \begin{bmatrix} 2 & 0 & -1 \\ 3 & 5 & 2 \\ -4 & 1 & 4 \end{bmatrix}$?

(3 points)

- ☐ a. 6
- ☒ b. 13
- ☐ c. 59
- ☐ d. 21
- ☐ e. 53

Question 1

not yet

answered

marked out of

1.00

Which one of the following is a symmetric matrix?

(2 points)

☐ a.
$$\begin{pmatrix} 5 & 2 & 5 \\ 11 & 4 & 11 \\ 5 & 2 & 5 \end{pmatrix}$$

☒ b.
$$\begin{pmatrix} 5 & 3 & 2 \\ 3 & 4 & 11 \\ 2 & 11 & 6 \end{pmatrix}$$

☐ c.
$$\begin{pmatrix} 5 & 3 & 2 \\ 11 & 4 & 3 \\ 6 & 11 & 5 \end{pmatrix}$$

☐ d.
$$\begin{pmatrix} 5 & 3 & -2 \\ -3 & 4 & 11 \\ 2 & -11 & 6 \end{pmatrix}$$

Question 1Not yet
answeredMarked out of
2.00

If $A = \begin{bmatrix} 2 & 1 \\ 5 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 4 \\ 3 & -2 \end{bmatrix}$ then what is $2A + B^T$?

(2 points)

☐ a. $\begin{bmatrix} 0 & 16 \\ 10 & -10 \end{bmatrix}$

☐ b. $\begin{bmatrix} 2 & 6 \\ 13 & -8 \end{bmatrix}$

☒ c. $\begin{bmatrix} 2 & 5 \\ 14 & -8 \end{bmatrix}$

☐ d. $\begin{bmatrix} 2 & 13 \\ 6 & -8 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

What type of matrix is this?

$$\begin{pmatrix} 3 & 5 & 7 \\ 0 & 2 & 4 \\ 0 & 0 & 1 \end{pmatrix}$$

- ☐ a. Identity Matrix
- ☐ b. No answer is correct
- ☐ c. Symmetric Matrix
- ☐ d. Lower Triangular Matrix
- ☒ e. Upper Triangular Matrix

Question 1

Not yet
answered

Marked out of
2.00

What is the transpose of $\begin{pmatrix} 2 & -5 \\ 3 & 6 \\ -7 & 10 \end{pmatrix}$?

(2 points)

☐ a. $\begin{pmatrix} -5 & 6 & 10 \\ 2 & 3 & -7 \end{pmatrix}$

☐ b. $\begin{pmatrix} -2 & 5 \\ -3 & -6 \\ 7 & -10 \end{pmatrix}$

☐ c. $\begin{pmatrix} -5 & 2 \\ 6 & 3 \\ 10 & -7 \end{pmatrix}$

☒ d. $\begin{pmatrix} 2 & 3 & -7 \\ -5 & 6 & 10 \end{pmatrix}$

Question 1Not yet
answeredMarked out of
2.00

If $A = \begin{bmatrix} 1 & 2 & -3 \\ -5 & 4 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} -2 & 6 & 4 \\ -1 & -2 & 3 \end{bmatrix}$ then what is $2A + 5B$?

(2 points)

- ☐ a. $\begin{bmatrix} -8 & 34 & 14 \\ -5 & -2 & 19 \end{bmatrix}$
- ☐ b. $\begin{bmatrix} 12 & -26 & -26 \\ -5 & 18 & -11 \end{bmatrix}$
- ☒ c. $\begin{bmatrix} -8 & 34 & 14 \\ -15 & -2 & 19 \end{bmatrix}$
- ☐ d. $\begin{bmatrix} 12 & 34 & 14 \\ -15 & -2 & 19 \end{bmatrix}$

Question 1Not yet
answeredMarked out of
3.00

What is the determinant of the matrix $A = \begin{bmatrix} 3 & 0 & -1 \\ 2 & -5 & 4 \\ -3 & 1 & 3 \end{bmatrix}$?

(3 points)

- ☐ a. 70
- ☐ b. 50
- ☐ c. -74
- ☒ d. -44
- ☐ e. -60

Question 1

Not yet
answered

Marked out of
2.00

Which one of the following is not a diagonal matrix?

(2 points)

☐ a.
$$\begin{pmatrix} 3 & 0 & 0 \\ 0 & 4 & 0 \\ 0 & 0 & 5 \end{pmatrix}$$

☒ b.
$$\begin{pmatrix} 0 & 0 & 3 \\ 0 & 2 & 0 \\ 1 & 0 & 0 \end{pmatrix}$$

☐ c.
$$\begin{pmatrix} -5 & 0 & 0 \\ 0 & 5 & 0 \\ 0 & 0 & 5 \end{pmatrix}$$

☐ d.
$$\begin{pmatrix} -1 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & -6 \end{pmatrix}$$

Question 1

Not yet
answered

Marked out of
2.00

Identify the type of the following matrix:

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

- ☒ a. Identity Matrix
- ☐ b. Scalar Matrix
- ☐ c. Upper Triangular Matrix
- ☐ d. Lower Triangular Matrix
- ☐ e. No answer is correct

Question 1Not yet
answeredMarked out of
2.00

Solve the system of equations using matrices. (2 points)

$$x + y + z = 6$$

$$2x - y - z = 3$$

$$x + 3y + 2z = 11$$

Knowing that the minor matrix is:

$$\begin{bmatrix} 1 & 5 & 7 \\ -1 & 1 & 2 \\ 0 & -3 & -3 \end{bmatrix} \text{ and}$$

The cofactor matrix is:

$$\begin{bmatrix} 1 & -5 & 7 \\ 1 & 1 & -2 \\ 0 & 3 & -3 \end{bmatrix}$$

- ☐ a. $x=3, y=3, z=1$
- ☐ b. $x=4, y=2, z=1$
- ☐ c. $x=1, y=2, z=1$
- ☒ d. $x=3, y=2, z=1$
- ☐ e. $x=3, y=2, z=2$

Question 1Not yet
answeredMarked out of
2.00Calculate $3A - 0.5B$, where $A = [1 \ 2 \ 3; 4 \ 5 \ 6; 7 \ 8 \ 9]$ and $B = [9 \ 8 \ 7; 6 \ 5 \ 4; 3 \ 2 \ 1]$.

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and}$$
$$B = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}.$$

☐ a. $\begin{bmatrix} 30 & 38 & 46 \\ 24 & 29 & 34 \\ 18 & 20 & 22 \end{bmatrix}$

☐ b. Nothing is correct

☒ c. $\begin{pmatrix} -1.5 & 2 & 5.5 \\ 9 & 12.5 & 16 \\ 19.5 & 23 & 26.5 \end{pmatrix}$

☐ d. $\begin{bmatrix} 39 & 38 & 37 \\ 36 & 35 & 34 \\ 33 & 32 & 31 \end{bmatrix}$

☐ e. $\begin{bmatrix} 36 & 34 & 32 \\ 28 & 26 & 24 \\ 20 & 18 & 16 \end{bmatrix}$

Question 1Not yet
answeredMarked out of
4.00

Find the inverse of the matrix using Minors, Cofactors, and Adjugate (4 points)

$$A = \begin{bmatrix} 2 & 0 & 3 \\ -2 & 3 & -4 \\ -3 & 1 & -4 \end{bmatrix}$$

☐ a. $\begin{bmatrix} 5 & 3 & 6 \\ -6 & -3 & -7 \\ 2 & 1 & 2 \end{bmatrix}$

☐ b. $\begin{bmatrix} -5 & -6 & -2 \\ 3 & 3 & 1 \\ -6 & -7 & -2 \end{bmatrix}$

☐ c. $\begin{bmatrix} -5 & -3 & -6 \\ 6 & 3 & 7 \\ -2 & -1 & -2 \end{bmatrix}$

☒ d. $\begin{bmatrix} -\frac{8}{5} & \frac{3}{5} & -\frac{9}{5} \\ \frac{4}{5} & \frac{1}{5} & \frac{2}{5} \\ \frac{7}{5} & -\frac{2}{5} & \frac{6}{5} \end{bmatrix}$

☐ e. $C = \begin{bmatrix} 1 & 0 & -3 \\ 2 & -2 & 1 \\ 0 & -1 & 3 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

What are the values of matrix A determinant (D), X, Y, and Z?

$$6x - 2y + 2z = 4$$

$$4x + 2y = 2$$

$$X + 2Y - Z = 3$$

$$A = \begin{pmatrix} 6 & -2 & 2 \\ 4 & 2 & 0 \\ 1 & 2 & -1 \end{pmatrix}$$

where the matrix of minors of A is:

$$\begin{pmatrix} -2 & -4 & 6 \\ -2 & -8 & 14 \\ -4 & -8 & 20 \end{pmatrix}$$

Select one:

- ☐ a. $D = 9, x = 1, y = 4, \text{ and } z = 11$
- ☐ b. $D = -8, x = 4, y = 4, \text{ and } z = -6$
- ☐ c. $D = 5, x = 3, y = -5, \text{ and } z = -10$
- ☒ d. $D = -8, x = 2, y = -3, \text{ and } z = -7$

Question 1Not yet
answeredMarked out of
4.00

Find the inverse of the matrix (4 points)

$$M = \begin{bmatrix} 2 & -1 & 0 \\ 1 & 3 & -1 \\ -3 & 0 & 1 \end{bmatrix}$$

using Minors, Cofactors and Adjugate

- ☐ a. $\begin{bmatrix} 0.75 & 0.5 & 2.25 \\ 0.25 & 0.5 & 0.75 \\ 0.25 & 0.5 & 1.75 \end{bmatrix}$
- ☒ b. $\begin{bmatrix} 0.75 & 0.25 & 0.25 \\ 0.5 & 0.5 & 0.5 \\ 2.25 & 0.75 & 1.75 \end{bmatrix}$
- ☐ c. $\begin{bmatrix} -0.75 & 0.25 & -0.25 \\ 0.5 & -0.5 & 0.5 \\ -2.25 & 0.75 & -1.75 \end{bmatrix}$
- ☐ d. $\begin{bmatrix} 0.75 & -0.25 & 0.25 \\ -0.5 & 0.5 & -0.5 \\ 2.25 & -0.75 & 1.75 \end{bmatrix}$
- ☐ e. $M = \begin{bmatrix} 2 & -1 & 0 \\ 1 & 3 & -1 \\ -3 & 0 & 1 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

Calculate $0.5 \cdot A + 2 \cdot B$, where

$A = [1 \ 2 \ 3; 4 \ 5 \ 6; 7 \ 8 \ 9]$ and

$B = [9 \ 8 \ 7; 6 \ 5 \ 4; 3 \ 2 \ 1]$.

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and}$$
$$B = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}.$$

☒ a. $\begin{bmatrix} 18.5 & 17 & 15.5 \\ 14 & 12.5 & 11 \\ 9.5 & 8 & 6.5 \end{bmatrix}$

☐ b. $\begin{bmatrix} 39 & 38 & 37 \\ 36 & 35 & 34 \\ 33 & 32 & 31 \end{bmatrix}$

☐ c. $\begin{bmatrix} 30 & 38 & 46 \\ 24 & 29 & 34 \\ 18 & 20 & 22 \end{bmatrix}$

☐ d. Nothing is correct

☐ e. $\begin{bmatrix} 36 & 34 & 32 \\ 28 & 26 & 24 \\ 20 & 18 & 16 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
3.00

What is the determinant of the matrix $A = \begin{bmatrix} 2 & -3 & 1 \\ 4 & 2 & -1 \\ -5 & 3 & -2 \end{bmatrix}$?

(3 points)

- ☐ a. -15
- ☐ b. -63
- ☐ c. 50
- ☐ d. 59
- ☒ e. -19

Question 1

Not yet
answeredMarked out of
2.00Solve the following system of linear equations for variables x, y, z , and w : (2 points)

1. $x + y + z + w = 10$

2. $2x - y + 3z - w = 1$

3. $-x + 4y + z + 2w = 2$

4. $3x + y - z + w = 11$

Hint:

$$A = \begin{bmatrix} 1 & 1 & 1 & 1 \\ 2 & -1 & 3 & -1 \\ -1 & 4 & 1 & 2 \\ 3 & 1 & -1 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 10 \\ 1 \\ 2 \\ 11 \end{bmatrix}$$

Here are the calculated determinants:

Here are the calculated determinants:

- The determinant D of matrix A is 28.
- The determinant D_x when replacing the first column with B is 52.
- The determinant D_y when replacing the second column with B is -155 .
- The determinant D_z when replacing the third column with B is 38.
- The determinant D_w when replacing the fourth column with B is 345.

☐ a. $(13/28, -155/28, 19/14, 345/28)$

☐ b. $(3/7, 155/28, -19/14, 345/28)$

☐ c. $(16/7, -185/28, 29/14, 395/18)$

☒ d. $(13/7, -155/28, 19/14, 345/28)$

☐ e. $(1/17, -15/2, 9/4, 35/8)$

Question 1

Not yet
answered

Marked out of
3.00

The determinant of matrix B is (3 points):

(answer one digit like: 9)

Matrix B :

$$B = \begin{bmatrix} 2 & 0 \\ 1 & 3 \end{bmatrix}$$

Minors of B :

$$\begin{bmatrix} 3 & 1 \\ 0 & 2 \end{bmatrix}$$

Cofactors of B :

$$\begin{bmatrix} 3 & -1 \\ 0 & 2 \end{bmatrix}$$

☐ a. 7

☐ b. 9

☒ c. 6

☐ d. 4

☐ e. 5

Question 1

Not yet
answered

Marked out of
2.00

A is a 3×2 matrix

B is a 2×3 matrix

C is a 2×2 matrix

D is a 3×3 matrix

Which of the following products does not exist?
(2 points)

☐ a. AB

☒ b. CD

☐ c. AC

☐ d. BD

Question 1

Not yet
answered

Marked out of
2.00

$$-5(A + B) = -5A - 5B$$

(2 points)

Select one:

☒ True

☐ False

Question 1Not yet
answeredMarked out of
4.00

Find the inverse of the matrix using Minors, Cofactors, and Adjugate

$$C = \begin{bmatrix} 1 & 0 & -3 \\ 2 & -2 & 1 \\ 0 & -1 & 3 \end{bmatrix}$$

(3 points)

☐ a. $\begin{bmatrix} 5 & 3 & 6 \\ -6 & -3 & -7 \\ 2 & 1 & 2 \end{bmatrix}$

☐ b. $\begin{bmatrix} -5 & -3 & -6 \\ 6 & 3 & 7 \\ -2 & -1 & -2 \end{bmatrix}$

☐ c. $\begin{bmatrix} -5 & -6 & -2 \\ 3 & 3 & 1 \\ -6 & -7 & -2 \end{bmatrix}$

☐ d. $C = \begin{bmatrix} 1 & 0 & -3 \\ 2 & -2 & 1 \\ 0 & -1 & 3 \end{bmatrix}$

☒ e. $\begin{bmatrix} -5 & 3 & -6 \\ -6 & 3 & -7 \\ -2 & 1 & -2 \end{bmatrix}$

Question 1Not yet
answeredMarked out of
2.00Calculate $-2*A-B$, where $A = [1\ 2\ 3; 4\ 5\ 6; 7\ 8\ 9]$ and $B = [9\ 8\ 7; 6\ 5\ 4; 3\ 2\ 1]$.

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and}$$
$$B = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}.$$

☒ a. $\begin{bmatrix} -11 & -12 & -13 \\ -14 & -15 & -16 \\ -17 & -18 & -19 \end{bmatrix}$

☐ b. $\begin{bmatrix} 39 & 38 & 37 \\ 36 & 35 & 34 \\ 33 & 32 & 31 \end{bmatrix}$

☐ c. $\begin{bmatrix} 30 & 38 & 46 \\ 24 & 29 & 34 \\ 18 & 20 & 22 \end{bmatrix}$

☐ d. Nothing is correct

☐ e. $\begin{bmatrix} 36 & 34 & 32 \\ 28 & 26 & 24 \\ 20 & 18 & 16 \end{bmatrix}$

Question 1Not yet
answeredMarked out of
2.00

The inverse of matrix B is (2 points):

$$B = \begin{bmatrix} 2 & 1 \\ 0 & 3 \end{bmatrix}$$

$$B = \begin{bmatrix} 2 & 1 \\ 0 & 3 \end{bmatrix}$$

a.

$$\frac{1}{6} \times \begin{bmatrix} 3 & -1 \\ 0 & 2 \end{bmatrix}$$

☐ b. 6☐ c. -6☐ d.

$$\begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix} = [3, 0; -1, 2]$$

☐ e.

$$\begin{bmatrix} 3 & -1 \\ 0 & 2 \end{bmatrix}^T = \text{Transpose } [3, -1; 0, 2]$$

Question 1

Not yet
answered

Marked out of
3.00

Find the determinant of the matrix B: (2 points)

$$B = \begin{bmatrix} 2 & 0 \\ 1 & 3 \end{bmatrix}$$

B = [2, 0; 1, 3]

(3 points)

- ☐ a. [0.5, 3; -1/6, 1/6]
- ☐ b. [2, 0; -1, -2]
- ☒ c. 6
- ☐ d. -6
- ☐ e. 5

Question 1Not yet
answeredMarked out of
2.00

$$B = \begin{bmatrix} 0 & 2 \\ 1 & 3 \end{bmatrix}$$

$$B = [0, 2; \\ 1, 3]$$

☐ a. 6

☐ b. -6

☒ c. $\frac{1}{-2} \times \begin{bmatrix} 3 & -2 \\ -1 & 0 \end{bmatrix}$

☐ d. $\begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix} = [3, 0; -1, 2]$

☐ e. $\begin{bmatrix} 3 & -1 \\ 0 & 2 \end{bmatrix}^T = \text{Transpose } [3, -1; 0, 2]$

Question 1Not yet
answeredMarked out of
2.00

Calculate $3 \cdot A + 4 \cdot B$, where
 $A = [1 \ 2 \ 3; 4 \ 5 \ 6; 7 \ 8 \ 9]$ and
 $B = [9 \ 8 \ 7; 6 \ 5 \ 4; 3 \ 2 \ 1]$.

$$A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix} \text{ and}$$
$$B = \begin{bmatrix} 9 & 8 & 7 \\ 6 & 5 & 4 \\ 3 & 2 & 1 \end{bmatrix}.$$

☒ a. $\begin{bmatrix} 40 & 46 & 52 \\ 28 & 33 & 38 \\ 16 & 20 & 24 \end{bmatrix}$

☐ b. Nothing is correct

☐ c. $\begin{bmatrix} 36 & 34 & 32 \\ 28 & 26 & 24 \\ 20 & 18 & 16 \end{bmatrix}$

☐ d. $\begin{bmatrix} 30 & 38 & 46 \\ 24 & 29 & 34 \\ 18 & 20 & 22 \end{bmatrix}$

☐ e. $\begin{bmatrix} 39 & 38 & 37 \\ 36 & 35 & 34 \\ 33 & 32 & 31 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

The inverse of matrix B is (2 points):

Matrix B :

$$B = \begin{bmatrix} 2 & 0 \\ 1 & 3 \end{bmatrix}$$

$$B = \begin{bmatrix} 2 & 0 \\ 1 & 3 \end{bmatrix}$$

☐ a. $\begin{bmatrix} 3 & -1 \\ 0 & 2 \end{bmatrix}^T = \text{Transpose } [3, -1; 0, 2]$

☐ b. 6

☐ c. -6

☒ d. $\frac{1}{6} \times \begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix} = [1/2, 0; -1/6, 1/3]$

☐ e. $\begin{bmatrix} 3 & 0 \\ -1 & 2 \end{bmatrix} = [3, 0; -1, 2]$

Question 1

Not yet
answered

Marked out of
2.00

If $A = [4]$, then $|A| = 4$

(1 points)

Select one:

☒ True

☐ False

Question 1Not yet
answeredMarked out of
3.00

What is the determinant of the matrix that can be used to solve this system of equations using only one digit? (3 points)

$$\begin{aligned}x + y + z &= 6 \\ 2x - y - z &= 3 \\ x + 3y + 2z &= 11\end{aligned}$$

Knowing that the minor matrix is:

$$\begin{bmatrix} 1 & 5 & 7 \\ -1 & 1 & 2 \\ 0 & -3 & -3 \end{bmatrix}$$

and the cofactor matrix is:

$$\begin{bmatrix} 1 & -5 & 7 \\ 1 & 1 & -2 \\ 0 & 3 & -3 \end{bmatrix}$$

3

Answer:

Question 1

Not yet
answered

Marked out of
2.00

What is the transpose of the matrix $\begin{bmatrix} 2 & -5 & 6 \\ -1 & 2 & -4 \\ -3 & -1 & 0 \end{bmatrix}$?

(2 points)

☐ a. $\begin{bmatrix} -2 & 5 & -6 \\ 1 & -2 & 4 \\ 3 & 1 & 0 \end{bmatrix}$

☐ b. $\begin{bmatrix} 6 & -4 & 0 \\ 2 & -1 & -3 \\ -5 & 2 & -1 \end{bmatrix}$

☐ c. $\begin{bmatrix} -5 & 2 & -1 \\ 6 & -4 & 0 \\ 2 & -1 & -3 \end{bmatrix}$

☒ d. $\begin{bmatrix} 2 & -1 & -3 \\ -5 & 2 & -1 \\ 6 & -4 & 0 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

Identify the type of the following matrix:

$$\begin{pmatrix} 1 & 2 & 4 \\ 2 & 3 & 5 \\ 4 & 5 & 6 \end{pmatrix}$$

- ☐ a. Identity Matrix
- ☐ b. Scalar Matrix
- ☐ c. Upper Triangular Matrix
- ☐ d. Lower Triangular Matrix
- ☒ e. Symmetric Matrix

Question 1

Not yet
answered

Marked out of
1.00

Solve the following system of equations using Cramer's method:

$$3x + 4y = 31$$

$$2x + y = 14$$

What are the values of D , D_x , D_y , x , and y ?

Select one:

- ☒ a. $D = -5$, $D_x = -25$, $D_y = -20$, $x = 5$, and $y = 4$
- ☐ b. $D = -6$, $D_x = -2$, $D_y = -2$, $x = 2$, and $y = 2$
- ☐ c. $D = 5$, $D_x = 25$, $D_y = 20$, $x = -5$, and $y = -4$
- ☐ d. $D = 51$, $D_x = 5$, $D_y = 0$, $x = 50$, and $y = 4$

Question 1Not yet
answeredMarked out of
2.00

Let: (2 points)

$$\mathbf{A} = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 3 \end{bmatrix}, \mathbf{B} = \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$$

Then:

$$(\mathbf{AB})^T =$$

Select one:

☐ a.

$$\begin{bmatrix} 1 & 1 & 0 \\ 0 & 2 & 3 \end{bmatrix} \begin{bmatrix} 1 \\ 1 \\ 2 \end{bmatrix}$$

☐ b.

$$\begin{bmatrix} 1 & 0 \\ 1 & 2 \\ 0 & 3 \end{bmatrix}$$

☒ c.

$$\begin{bmatrix} 2 & 8 \end{bmatrix}$$

☐ d.

$$\begin{bmatrix} 1 & 1 & 2 \end{bmatrix}$$

Question 1

Not yet
answered

Marked out of
2.00

What type of matrix is shown below?

- ☐ a. Upper Triangular Matrix
- ☐ b. No answer is correct
- ☒ c. Scalar Matrix
- ☐ d. Symmetric Matrix
- ☐ e. Lower Triangular Matrix

Question 1

Not yet
answered

Marked out of
3.00

What is the determinant of the matrix $A = \begin{bmatrix} 2 & -1 & 0 \\ 3 & -5 & 2 \\ 1 & 4 & -2 \end{bmatrix}$?

(3 points)

☐ a. 12

☐ b. 8

☒ c. -4

☐ d. -44

☐ e. 90

Question 1

Not yet
answered

Marked out of
2.00

If $A = \begin{bmatrix} 1 & -2 \\ 4 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 4 \\ 6 & -2 \end{bmatrix}$ then what is $3A^T - 2B^T$?

(3 points)

- ☒ a. $\begin{bmatrix} 5 & 0 \\ -14 & -5 \end{bmatrix}$
- ☐ b. $\begin{bmatrix} 5 & 0 \\ -14 & -13 \end{bmatrix}$
- ☐ c. $\begin{bmatrix} 1 & 24 \\ 2 & -13 \end{bmatrix}$
- ☐ d. $\begin{bmatrix} 5 & 24 \\ -14 & -5 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
2.00

If $A = \begin{bmatrix} -3 & 1 \\ -2 & 4 \\ 5 & -1 \end{bmatrix}$ and $B = \begin{bmatrix} 4 & -3 \\ 0 & -2 \\ -2 & 4 \end{bmatrix}$ then what is $3A - 2B$?

(2 points)

☒ a. $\begin{bmatrix} -17 & 9 \\ -6 & 16 \\ 19 & -11 \end{bmatrix}$

☐ b. $\begin{bmatrix} -1 & 9 \\ -6 & 8 \\ 11 & -11 \end{bmatrix}$

☐ c. $\begin{bmatrix} -1 & -3 \\ -6 & 8 \\ 11 & 5 \end{bmatrix}$

☐ d. $\begin{bmatrix} -17 & -3 \\ 6 & 16 \\ 11 & -11 \end{bmatrix}$

Question 1

Not yet
answered

Marked out of
1.00

$$\begin{bmatrix} 2 & 3 \\ 4 & 4 \end{bmatrix} * \begin{bmatrix} 3 & 3 \\ 2 & 3 \end{bmatrix} =$$

☐ a. $\begin{bmatrix} 12 & 15 \\ 20 & 14 \end{bmatrix}$

☒ b. $\begin{bmatrix} 12 & 15 \\ 20 & 24 \end{bmatrix}$

☐ c. $\begin{bmatrix} 12 & 15 \\ 20 & 14 \end{bmatrix}$

☐ d. None

Question 1

Not yet
answered

Marked out of
2.00

If A is a matrix with a dimension of 2×3 and B is a matrix with a dimension of 4×2 , the matrix multiplication $A \times B$ is possible.

Select one:

☐ True

☒ False

Question 1

Not yet
answered

Marked out of
2.00

If $A = [1 \ 4 \ 2]$, $B = \begin{bmatrix} 3 \\ 6 \\ 5 \end{bmatrix}$, then $AB = 37$

(1 points)

Select one:

☒ True

☐ False