



Question 10

Which of the following equations is true for all positive values of x and y ?

Option A

$\sqrt{x} \times \sqrt{y} = \sqrt{x+y}$

Option B

$\sqrt{x^4 y^{16}} = x^2 y^4$

Option C

$y\sqrt{x} + y\sqrt{x} = \sqrt{4xy^2}$

Option D

$(x\sqrt{y})(y\sqrt{x}) = x^2 y^2$

← Previous



Question 9

If α and β are the roots of the equation $3x^2 - 7x - 1$. Find the values of $(\alpha - \beta)^2$.

Option A

$\frac{61}{9}$

Option B

$\frac{55}{9}$

Option C

$\frac{3007}{81}$

Option D

$\frac{71}{9}$

← Previous

SUBMIT & GO NOW



Question 8

Give the first three terms of
 $(1 + x)^{15}$ in descending order

Option A

$15x^2 + 105x + 15$

Option B

$105x^2 + 15x + 1$

Option C

$455x^2 + 105x + 15$

Option D

$1 + 105x + 15x^2$

Previous



Question 7

In a certain arithmetic progression, the sum of the first and fifth terms is 18 and the fifth term is 6 more than the third term. Find the sum of the first ten terms of the progression.

Option A

90

Option B

165

Option C

330

Option D

160



The function f and g defined by
 $f(x) = x^3 - 2x^2 - 5x + 6$ and
 $g(x) = x - 1$. Find $f(g(x))$.

Option A

$x^3 - 2x^2 - 5x + 7$

Option B

$x^3 - 5x^2 - 2x + 7$

Option C

$x^3 - 2x^2 - 5x + 5$

Option D

$x^3 - 5x^2 + 2x + 8$

Previous

SUBMIT C.A. NOW



Question 4

Simplify $\left(\frac{x^a}{x^b}\right)^{a+b} \times \left(\frac{x^{a+b}}{x^{a-b}}\right)^{\frac{a^2}{b}}$

Option A

$x^{-a^2-b^2}$

Option B

$x^{(a-b)^2}$

Option C

$x^{3a^2-b^2}$

Option D

$x^{a^2-b^2}$

← Previous

SUBMIT & GO NOW



Question 8

Give the first three terms of
 $(1 + x)^{15}$ in descending order

Option A

$1 + 105x + 15x^2$

Option B

$455x^2 + 105x + 15$

Option C

$105x^2 + 15x + 1$

Option D

$15x^2 + 105x + 15$

← Previous

SUBMIT C.A. NOW



Question 3

Find the inverse of the function defined by $h : x \rightarrow \frac{x}{x^2-1}$.

Option A

$h^{-1}(x) = \frac{1-\sqrt{1+4x^2}}{2x}$

Option B

$\frac{x(x^2-1)}{x}$

Option C

$\frac{x^2-1}{\sqrt{x}}$

Option D

$h^{-1}(x) = \frac{x^2-1}{x}$

← Previous



14 Mins : 18 Secs

0 of 10 Questions Attempted

Question 2

Let $A = \{x \in \mathbb{N} : x < 7\}$ and
 $B = \{x \in \mathbb{Z} : |x - 2| < 4\}$. Find
 $A \cup B$?

Option A $\{-1, 0, 1, 2, 3, 4, 5, 6\}$ **Option B** $\{-2, 0, 1, 2, 3, 4, 5, 6\}$ **Option C** $\{-2, -1, 0, 1, 2, 3, 4, 5\}$ **Option D** $\{1, 2, 3, 4, 5, 6\}$



Assessment 01

Home / MAT 101 Continuous Assessment 01

14 Mins : 47 Secs

0 of 10 Questions Attempted

Question 1

Solve completely, the equation

$$\sqrt{(x^2 - 3x + 6)} = 1 - \sqrt{(x^2 - 3x + 3)}$$

Option A

$\frac{1}{2}$

Option B

-2

Option C

-1

Option D

1



If $\log_2 u = w$, $2 \log_8 u = v$ and
 $v - w = -4$. Find u ?

Option A

- $\frac{1}{512}$

Option B

- 1.08

Option C

- 512

Option D

- 2

← Previous

SUBMIT C.A. NOW

Quick Link

1	2	3	4	5	6
7	8	9	10		



$$A = \begin{pmatrix} 2 & 4 & 3 \\ 1 & -2 & -2 \\ -3 & 3 & 2 \end{pmatrix}.$$

Option A

$-\frac{1}{21} \begin{pmatrix} 2 & 4 & -3 \\ 1 & 13 & -18 \\ -2 & 7 & -8 \end{pmatrix}$

Option B

$-\frac{1}{11} \begin{pmatrix} 2 & 4 & -3 \\ 1 & 13 & -18 \\ -2 & 7 & -8 \end{pmatrix}$

Option C

$\frac{1}{11} \begin{pmatrix} 2 & 1 & -3 \\ 4 & -2 & 3 \\ 3 & -2 & 2 \end{pmatrix}$

Option D

$\frac{1}{11} \begin{pmatrix} 2 & 1 & -2 \\ 4 & 13 & 7 \\ -3 & -18 & -8 \end{pmatrix}$



(x-1)

Option A

- $\{x : 2 \leq x \leq 3\}$

Option B

- $\{x : 1 \leq x \leq 2\}$

Option C

- $\{x : -2 \leq x \leq 3\}$

Option D

- $\{x : 1 \leq x \leq 3\}$

Previous

SUBMIT C.A. NOW

Next

Quick Link

1

2

3

4

5

6

7

8

9

10



4 Mins : 17 Secs

10 of 10 Questions Attempted

Question 4

If α and β are the roots of the equation $3x^2 - 7x - 1$. Find the values of $(\alpha - \beta)^2$.

Option A $\frac{71}{9}$ **Option B** $\frac{55}{9}$ **Option C** $\frac{61}{9}$ **Option D** $\frac{3007}{81}$

Previous

SUBMIT C.A. NOW



FUNCTION $f(x) = 8x + 10x + 6$

Option A

$-\frac{16}{3} \leq x \leq +\infty$

Option B

$0 \leq x \leq 1$

Option C

$0 \leq x \leq 6$

Option D

$0 \leq x \leq 3$

← Previous

SUBMIT C.A. NOW

Next →

Quick Link

1

2

3

4

5

6

7

8

9

10

**Option A**

$\frac{2}{x^2} - \frac{3}{x} - \frac{2}{x-3}$

Option B

$\frac{2}{x^2} + \frac{3}{x} - \frac{2}{x-3}$

Option C

$\frac{2}{x^2} - \frac{2}{x-3}$

Option D

$\frac{2}{x^2} + \frac{3}{x} + \frac{2}{x-3}$

 [Previous](#) [SUBMIT C.A. NOW](#) [Next](#)**Quick Link**

1

2

3

4

5

6

7

8

9

10



Given a function $h : x \rightarrow \frac{x}{x^2-1}$,
 $x < 0, x \neq -1$. Find its inverse.

Option A

$\frac{x(x^2+1)}{x^4-1}, x \neq 1$

Option B

$\frac{\sqrt{1-x^2}}{x}, x \neq 0$

Option C

$\frac{1-\sqrt{1+4x^2}}{2x}, x \neq 0$

Option D

$x - \frac{1}{x}, x \neq 0$

← Previous

SUBMIT C.A. NOW

Next →

Quick Link



4 Mins : 24 Secs

10 of 10 Questions Attempted

Question 3

If α and β are the roots of the equation $2x^2 - x - 4 = 0$. Find the value of $\alpha^3 + \beta^3$.

Option A $\frac{-25}{8}$ **Option B** $\frac{-23}{8}$ **Option C** 2**Option D** $\frac{25}{8}$

Previous



$m - 6, m$ and $m + 18$ are successive terms of a geometric series. Which of the following is/are about m ?

Option A

- (ii) only

Option B

- (i) and (iii) only

Option C

- (ii) and (iii) only

Option D

- (i) only

SUBMIT C.A. NOW

Next →

Quick Link

1

2

3

4

5

6



4 Mins : 55 Secs 9 of 10 Questions Attempted

Question 7

Find the greatest value of

$$-2x^2 + 4x + 3 = 0$$

Option A $\frac{5}{2}$ **Option B** 1**Option C** -2**Option D** 3

Previous

SUBMIT C.A. NOW

Next



If $\log_2 u = w$, $2 \log_8 u = v$ and
 $v - w = -4$. Find u ?

Option A 2**Option B** $\frac{1}{512}$ **Option C** 512**Option D** 1.08 [Previous](#) [SUBMIT C.A. NOW](#)**Quick Link**[1](#)[2](#)[3](#)[4](#)[5](#)[6](#)[7](#)[8](#)[9](#)[10](#)

12:48 Abdulazeez Aderoju ADEGBOLA

Question 10

The first term of an arithmetic series is $3p + 5$ where p is a positive integer. The last term is $(17p + 17)$ and the common difference is 2. Find in terms of p the sum of the series.

Option A

$(7p + 7)(10p + 11)$

Option B

$(7p + 5)(10p + 9)$

Option C

$(7p - 7)(10p - 3)$

Option D

$(7p - 5)(10p - 1)$

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Question 9

{Write down the first five terms of the sequence specified by this recurrence relation: $U_1 = 0, U_n = \frac{1}{5-U_{n-1}} (n \geq 2)$ }

Option A

- 0, 5, $\frac{24}{25}$, $\frac{50}{48}$, $\frac{96}{100}$

Option B

- 0, $\frac{1}{5}$, $\frac{25}{24}$, $\frac{115}{125}$, $\frac{625}{551}$

Option C

- 0, $\frac{1}{5}$, $\frac{5}{24}$, $\frac{24}{115}$, $\frac{115}{551}$

Option D

- 0, 5, $\frac{24}{5}$, $\frac{120}{24}$, $\frac{24}{115}$

Previous

**Question 5**

$m - 6$, m and $m + 18$ are successive terms of a geometric series. Which of the following is/are about m ?

Option A

- (ii) only

Option B

- (i) and (iii) only

Option C

- (ii) and (iii) only

Option D

- (i) only

← Previous

12:49

41

Abdulazeez'Aderoju ADEGBOLA

Question 6

Find the value of k if the function
 $k(x^2 + 2x - 8)$ has a minimum value of
-27.

Option A

-9

Option B

-3

Option C

-1

Option D

3

← Previous

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12:49

4G



Abdulazeez Aderoju ADEGBOLA

Question 7

Find in surd form, the square root of
 $4 + 2\sqrt{3}$

Option A

$\pm(3 + \sqrt{5})$

Option B

$\pm(3 + \sqrt{3})$

Option C

$\pm(3 + \sqrt{2})$

Option D

$\pm(1 + \sqrt{3})$

Previous

SUBMIT C.A. NOW



Question 8

Let $|K| = \begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{vmatrix}$, then K is a

Option A

- Singular Matrix

Option B

- Matrix of Order 3

Option C

- Square Matrix

Option D

- Non-singular Matrix

← Previous

SUBMIT C.A. NOW



Question 1

Find the values of x such that

$$|2x - 3| > |x + 3|$$

Option A

$x < 0$

Option B

$x < 6$

Option C

$0 \leq x \leq 6$

Option D

$x > 6$

SUBMIT C.A. NOW

Next →

12:49

41

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Question 2

In a G.P, $U_3 = 32$ and $U_6 = 4$, Find the sum of the first eight terms of the G.P

Option A

195

Option B

205

Option C

255

Option D

325

← Previous

SUBMIT C.A. NOW

12:49

41



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Question 3

$$\frac{1+2x+3x^2}{(1-x)(1+x^2)}$$
 in partial fractions

Option A

$\frac{3}{1-x} - \frac{2x-2}{1+x^2}$

Option B

$\frac{2}{1-x} + \frac{3x-2}{1+x^2}$

Option C

$\frac{1}{1-x} + \frac{x-2}{1+x^2}$

Option D

$\frac{3}{1-x} - \frac{2}{1+x^2}$

Previous

SUBMIT C.A. NOW

12:49

41



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Question 4

If $\log_2 u = w$, $2 \log_8 u = v$ and
 $v - w = -4$. Find u ?

Option A

$\frac{1}{512}$

Option B

512

Option C

1.08

Option D

2

← Previous

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Question 8

The function f is given by the equation $f(x) = x^2 + 6x + 7$ for all numbers x . Which of the following statement is true?

Option A

- All of the above

Option B

- The function f does not have any real roots

Option C

- The graph of $y = f(x)$ in the $x - y$ plane crosses the x -axis at two points $(-7, 0)$ and $(-6, 0)$

Option D

- The graph of $y = f(x)$ in the $x - y$ plane has a minimum point at $(-3, -2)$



SUMMARY

10 of 10 Questions Attempted

Question 3Sum the first $2n$ terms of the series

$$5 + 11 + 17 + 23 + \dots$$

Option A

$6n + 4n^2$

Option B

$6n^2 + 4n$

Option C

$12n^2 + 4n$

Option D

$12n - 4n^2$

Previous

SUBMIT C.A. NOW

Next



8 Mins : 46 Secs

10 of 10 Questions Attempted

Question 1

Functions h_1, h_2 are defined by

$h_1 : x \rightarrow \log_2 x, h_2 : x \rightarrow \frac{1}{x}$. Find
 $h_1(h_2(x)) + h_1(x)$.

Option A 10**Option B** Cannot be determined**Option C** 1**Option D** 0

SUBMIT C.A. NOW

Next →

**Question 1**

Give the first three terms of $(2 + x)^5$
in ascending powers of x

Option A

$4 + 10x + 10x^2 + 5x^3$

Option B

$5x^3 + 10x^2 + 10x + 4$

Option C

$40x^3 + 80x^2 + 80x + 32$

Option D

$32 + 80x + 8x^2 + 40x^3$

SUBMIT C.A. NOW

Next →

Quick Link



Question 2

Find the remainder when
 $x^3 - 5x^2 + 6x - 2$ is divided by
 $(x - 2)^2$.

Option A

$6x + 6$

Option B

$6x + 2$

Option C

$2x + 6$

Option D

$-2x + 2$

Previous





Question 3

{Write down the first five terms of the sequence specified by this recurrence relation:

$$U_1 = 0, U_n = \frac{1}{5-U_{n-1}} \quad (n \geq 2)$$

Option A

0, 5, $\frac{24}{5}$, $\frac{120}{24}$, $\frac{24}{115}$

Option B

0, 5, $\frac{24}{25}$, $\frac{50}{48}$, $\frac{96}{100}$

Option C

0, $\frac{1}{5}$, $\frac{25}{24}$, $\frac{115}{125}$, $\frac{625}{551}$

Option D

0, $\frac{1}{5}$, $\frac{5}{24}$, $\frac{24}{115}$, $\frac{115}{551}$





Question 4

Find the sum to infinity of the geometric series $16 + 12 + 9 + \dots$

Option A

72

Option B

53

Option C

64

Option D

37

Previous





Question 5

If $n(n^2 + 5)$ is a multiple of 6, by inductive hypothesis which of the following is also a multiple of 6?

Option A

$n(n^2 + 5) + 3n(n + 1) + 6$

Option B

$(n^3 + 5) + 3n^2 + 6$

Option C



$(n + 1)(n^2 + 5) + 3(n + 1)^2 + 6$

Option D

$(n + 1)(n^2 + 2n + 6)$





Question 6

The operation '*' is defined over the set of real number \mathbb{R} by $a * b = a + b - ab$. Obtain the identity element e of * over \mathbb{R} .

Option A

1

Option B

-a

Option C

a

Option D

0





Assessment 01

Home / MAT 101 Continuous Assessment 01

6 Mins : 40 Secs

10 of 10 Questions Attempted

Question 7

The polynomial $f(x)$ is given by

$f(x) = x^4 + x^3 - 7x^2 + 3x + 2$. If also,

$f(x) = (x - 1)(x - 2)(x + 3)(x + c) + ax + b$,
find the values of a , b and c .

Option A

3, 2, 4

Option B

1, 2, -3

Option C

0, -4, 4

Option D

4, -4, 1





Question 8

$\frac{1+2x+3x^2}{(1-x)(1+x^2)}$ in partial fractions

Option A

$\frac{3}{1-x} - \frac{2}{1+x^2}$

Option B

$\frac{3}{1-x} - \frac{2x-2}{1+x^2}$

Option C

$\frac{2}{1-x} + \frac{3x-2}{1+x^2}$

Option D

$\frac{1}{1-x} + \frac{x-2}{1+x^2}$

Previous





Question 9

Find the greatest value of
 $-2x^2 + 4x + 3 = 0$

Option A

$\frac{5}{2}$

Option B

1

Option C

-2

Option D

3

← Previous

SUBMIT C.A. NOW

Next →

**Question 10**

For what values of x is $\frac{2x - 1}{x + 3} < \frac{2}{3}$

Option A

$x > \frac{3}{4}$

Option B

$x < \frac{3}{4}$

Option C

$x < \frac{9}{4}$

Option D

$\frac{9}{4}$

← Previous

SUBMIT C.A. NOW

