

Consider the following linear system of equations.

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$



(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

- a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{matrix} \boxed{\phantom{0}} & \boxed{\phantom{0}} & \boxed{\phantom{0}} \\ \boxed{\phantom{0}} & \boxed{\phantom{0}} & \boxed{\phantom{0}} \\ \boxed{\phantom{0}} & \boxed{\phantom{0}} & \boxed{\phantom{0}} \end{matrix}$$

$$b = \begin{matrix} \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \end{matrix}$$

**Question 1**  
Not yet answered  
Marked out of  
1.00  
 Flag question

Consider the following linear system of equations.

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{array}{|c|c|c|} \hline & & \\ \hline & & \\ \hline & & \\ \hline \end{array}$$

$$b = \boxed{\phantom{0}}$$

Quiz navigation

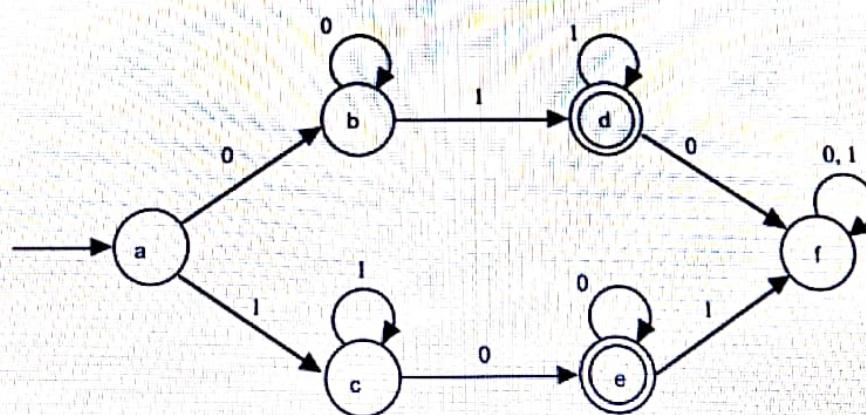
Finish attempt ...

Time left 1:59:01

1	2	3	4	5
8	9	10	11	12
15	16	17	18	19
22	23	24	25	26
29	30			

**Question 1**

Not yet answered

Marked out of  
1.00 Flag question**Obtain the Annotated Next-state Table for the following Finite State Machine.**

A theater has a seating capacity of 1000 and charges \$4 for children and \$5 for adults. At a certain screening with full attendance the receipts totaled \$4300. Write 2 equations to find the attended number of children and adults.

Assume that number of children is denoted by X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$4 * X + \boxed{5} * Y = 4300$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = : \quad \boxed{\phantom{0}}$$

$$r = : \quad s = : \quad \boxed{\phantom{0}}$$

$$c = : \quad \boxed{\phantom{0}}$$

x

⊕ | ⊖ | ⊗

$$\begin{bmatrix} a & b & c & d \\ e & f & g & h \\ p & q & r & s \end{bmatrix}$$

$$a = \boxed{\phantom{00}} \quad b = \boxed{\phantom{00}} \quad c = \boxed{\phantom{00}} \quad d = \boxed{\phantom{00}}$$

$$e = \boxed{\phantom{00}} \quad f = \boxed{\phantom{00}} \quad g = \boxed{\phantom{00}} \quad h = \boxed{\phantom{00}}$$

$$p = \boxed{\phantom{00}} \quad q = \boxed{\phantom{00}} \quad r = \boxed{\phantom{00}} \quad s = \boxed{\phantom{00}}$$

d) Determine the value of k for which the solution exist for the given system.

:



Next page

$$\mathbf{b} = \begin{bmatrix} \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \\ \boxed{\phantom{0}} \end{bmatrix}$$

b) Write down the augmented matrix for the above 3 equations.

$$\begin{bmatrix} a & b & c & d \\ e & f & g & h \\ p & q & r & s \end{bmatrix}$$

$$a = \boxed{\phantom{0}} \quad b = \boxed{\phantom{0}} \quad c = \boxed{\phantom{0}} \quad d = \boxed{\phantom{0}}$$

$$e = \boxed{\phantom{0}} \quad f = \boxed{\phantom{0}} \quad g = \boxed{\phantom{0}} \quad h = \boxed{\phantom{0}}$$

$$p = \boxed{\phantom{0}} \quad q = \boxed{\phantom{0}} \quad r = \boxed{\phantom{0}} \quad s = \boxed{\phantom{0}}$$

b) Write down the echelon form of the augmented matrix.

$$\begin{bmatrix} a & b & c & d \\ e & f & g & h \\ p & q & r & s \end{bmatrix}$$

$$f(x) = \left(\frac{1}{x} - 3\right) \frac{x^2 + 3}{2x - 1}$$

Find  $f'(-1)$ .

Hint : Differentiate the function and Substitute -1.

(Write your answer as a fraction. Eg: 23/2  
No spaces should be in the answer)

Answer: 16/9

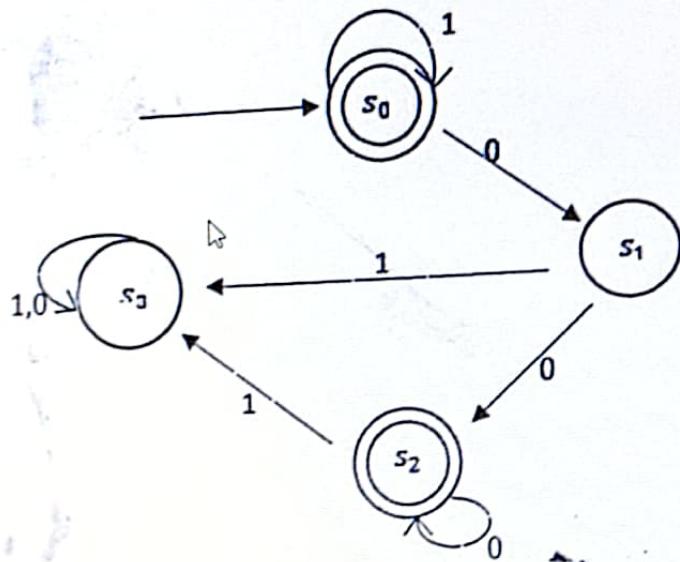
Question 1

Not yet answered

Marked out of  
1.00

Flag question

Consider the following finite state Machine A.



What is the initial State?

Choose... ▾

To what state does A go if 1000111 input to A in sequence starting from the initial state?

Choose... ▾

Find  $N(S_2, 0)$

Choose... ▾

Find  $N(S_3, 1)$

Choose... ▾

≡ Quiz

Finish after

Time left 1:

1	2
9	10
17	18
25	26

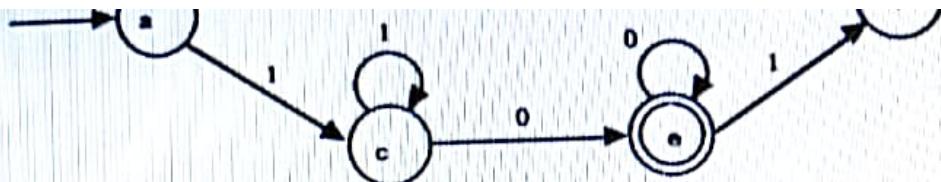
[Next page](#)

awered  
t of

estion

Find  $f'(-4)$  of the function  $f(x) = |4x|$ .

Answer =



Annotated  
Next-state  
Table

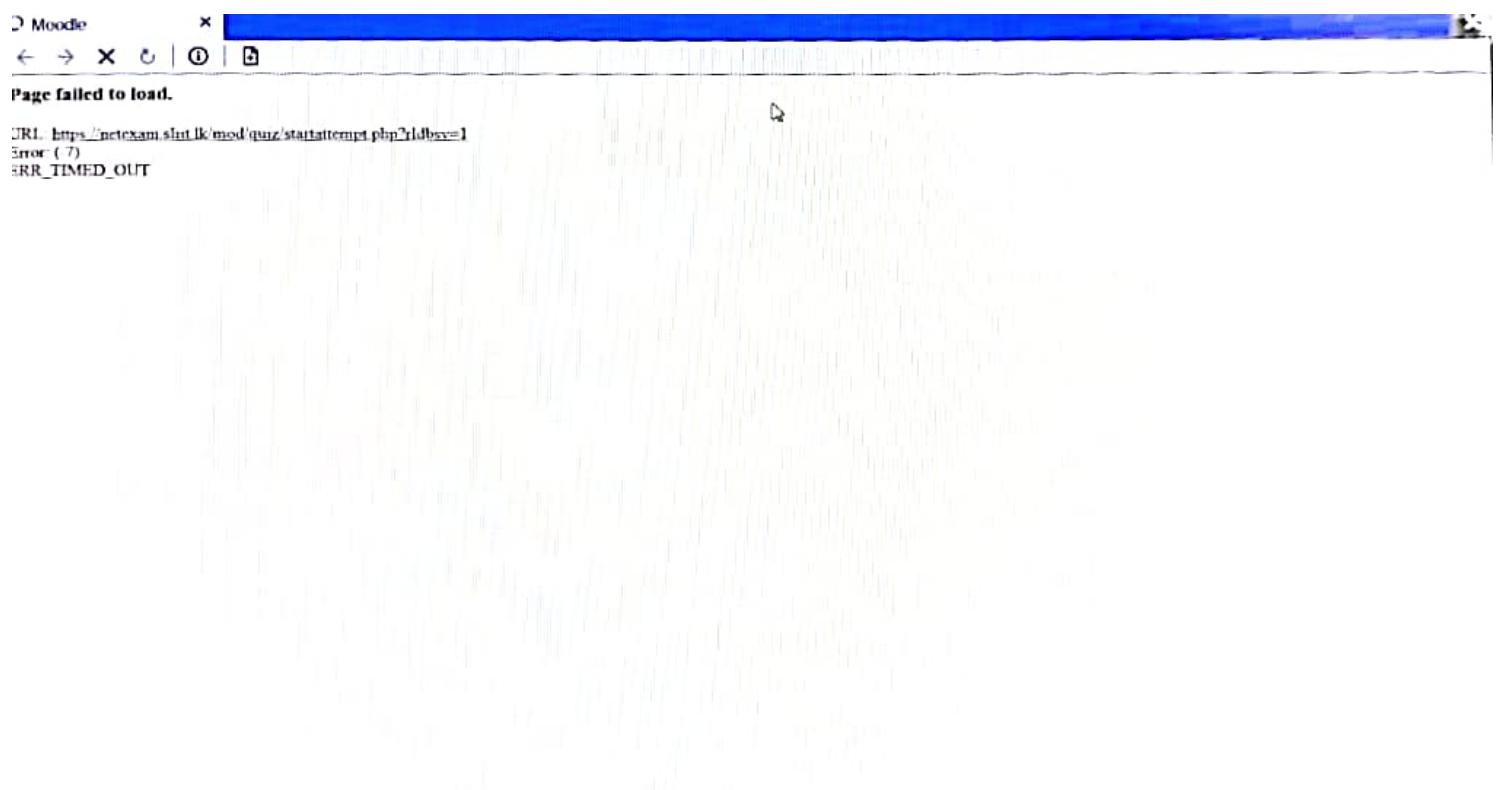
	1	0
a		
b		
c		
d		
e		
f		

swered  
ut of  
uestion

If  $A = \begin{vmatrix} a & b & c \\ x & y & z \\ l & m & n \end{vmatrix}$  is a skew-symmetric matrix then which of the following is equal to  $x+y+z$ ?

Select one:

- a+b+c
- l+m+n
- b-m
- c-l-n
- None of the above



Consider the following linear system of equations.

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{matrix} & & \\ & & \\ & & \end{matrix}$$



$$b =$$

### ≡ Quiz navigation

Finish attempt ...

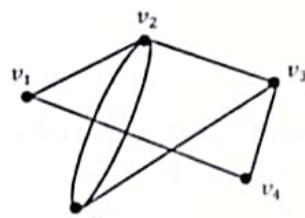
Time left 1:51:42

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

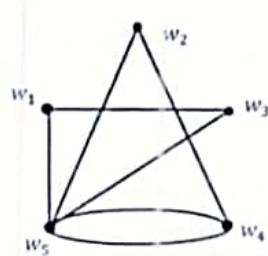
← → X ↻ | i | ?

Question 1  
Not yet answered  
Marked out of 1.00  
Flag question

Consider the following 2 graphs.



G



H

Number of Components

G

I

H

J

K

L

M

N

Number of Vertices

O

P

Q

R

S

Number of Edges

T

U

V

W

X

Degree Sequence

Y

Z

AA

AB

AC

Are they isomorphic?

G and H are

Isomorphic

Not Isomorphic

# Matrix Calculator

Find the food you fancy



Solution by Cramer's rule

$$\left\{ \begin{array}{l} 5.00 \times x_1 + 3.00 \times x_2 - 2.00 \times x_3 = 5.00 \\ 3.00 \times x_1 - 4.00 \times x_2 + 3.00 \times x_3 = 13.00 \\ x_1 + 6.00 \times x_2 - 4.00 \times x_3 = -8.00 \end{array} \right.$$

$$\Delta = \begin{vmatrix} 5.00 & 3.00 & -2.00 \\ 3.00 & -4.00 & 3.00 \\ 1.00 & 6.00 & -4.00 \end{vmatrix} \equiv -9.00$$

► Details (Triangle's rule)

$$\Delta_1 = \begin{vmatrix} 5.00 & 3.00 & -2.00 \\ 13.00 & -4.00 & 3.00 \\ -8.00 & 6.00 & -4.00 \end{vmatrix} \equiv -18.00;$$

► Details (Triangle's rule)

$$\Delta_2 = \begin{vmatrix} 5.00 & 5.00 & -2.00 \\ 3.00 & 13.00 & 3.00 \\ 1.00 & -8.00 & -4.00 \end{vmatrix} \equiv 9.00;$$

► Details (Triangle's rule)

$$\Delta_3 = \begin{vmatrix} 5.00 & 3.00 & 5.00 \\ 3.00 & -4.00 & 13.00 \\ 1.00 & 6.00 & -8.00 \end{vmatrix} \equiv -9.00;$$

► Details (Triangle's rule)

$$\circ x_1 = \Delta_1 / \Delta = \frac{-18.00}{-9.00} = 2.00$$

$$\circ x_2 = \Delta_2 / \Delta = \frac{9.00}{-9.00} = -1.00$$

$$\circ x_3 = \Delta_3 / \Delta = \frac{-9.00}{-9.00} = 1.00$$



If  $|A| = 128$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} x & 5 & 7 \\ 2 & 4 & 1 \\ -2 & 8 & 3 \end{bmatrix}$$

b<sub>4</sub>

C<sub>11</sub> Choose...

C<sub>12</sub> Choose...

C<sub>13</sub> Choose...

C<sub>21</sub> Choose...

C<sub>22</sub> Choose...



operations are applied in the given order.

$$\begin{bmatrix} 1 & -2 & 3 & 1 & 0 & 0 \\ -2 & 1 & -2 & 0 & 1 & 0 \\ 3 & -3 & 7 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} a & b & c & j & k & l \\ d & e & f & m & n & o \\ g & h & i & p & q & r \end{bmatrix}$$

$$1. r_2' = r_2 + 2r_1$$

$$2. r_3' = r_3 - 3r_1$$

$$3. r_3' = r_3 + r_2$$

$$4. r_3' = r_3 \times \frac{1}{2}$$

$$5. r_2' = r_2 - 4r_3$$

$$6. r_2' = r_2 \times -\frac{1}{3}$$

$$7. r_1' = r_1 - 3r_3$$

$$a = 1 \quad b = -2 \quad c = 0$$

$$d = 0 \quad e = 1 \quad f = 0$$

$$g = 0 \quad h = 0 \quad i = 1$$

$$j = 5/2 \quad k = -3/2 \quad l = -3/2$$

$$m = -4/3 \quad n = 1/3 \quad o = 2/3$$

$$p = -1/2 \quad q = 1/2 \quad r = 1/2$$

c) Using the answer in (b), find the inverse of the coefficient matrix A.

$$A^{-1} = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

N Refers to all the positive integers. (Called as Natural Numbers)

$$f: N \rightarrow N \quad f(n) = n^2$$

Is  $f$  a One to one function?

Is  $f$  an onto function?

Does  $f$  has an inverse function?

red

on

Find the derivative of the following function.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$y = \sqrt{x} + 8 \sqrt[3]{x} - 2 \sqrt[4]{x} .$$

$$y' = \boxed{1/2x} x^{\boxed{-1/2}} + \boxed{8/3x} x^{\boxed{-2/3}} - \boxed{1/2} x^{\boxed{-3/4}}$$

**Question 1**

Not yet answered

Marked out of  
1.00

Flag question

Consider the following linear system of equations.

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

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

$$3x - 3y + 7z = -2$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors s there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{bmatrix} 1 & -2 & 3 \\ -2 & 1 & -2 \\ 3 & -3 & 7 \end{bmatrix}$$

$$b = \begin{bmatrix} -2 \\ 2 \\ -2 \end{bmatrix}$$

b) Consider the following. Find the values of the resulting matrix, when the following elementary row operations are applied in the given order.

$$\begin{bmatrix} 1 & -2 & 3 & 1 & 0 & 0 \\ -2 & 1 & -2 & 0 & 1 & 0 \\ 3 & -3 & 7 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} a & b & c & j & k & l \\ d & e & f & m & n & o \\ g & h & i & p & q & r \end{bmatrix}$$

$$1. r_2' = r_2 + 2r_1$$

**Question 2**

Not yet answered

Marked out of  
1.00

Flag question

Consider the following linear system of equations.

$$3x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 2x_3 = 10$$

$$x_1 - 3x_2 - 4x_3 = 5$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Represent the above system of linear equations in matrix form  $Ax = b$ .

$$A = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}, x = \begin{bmatrix} x \\ y \\ z \end{bmatrix}, b = \begin{bmatrix} p \\ q \\ r \end{bmatrix}$$

$$a = : \quad b = : \quad c = :$$

$$d = : \quad e = : \quad f = :$$

$$g = : \quad h = : \quad i = :$$

$$p = :$$



ered  
if

tion

Let  $A = \begin{bmatrix} -1 & 2 \\ 3 & 1 \end{bmatrix}$ .

Find  $B = A^2 - 3A + 2I$

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

a = : 12

b = : -6

c = : -9

d = :

**Question 3**

Not yet answered

Marked out of  
1.00

Flag question

If  $A = \begin{vmatrix} a & b & c \\ x & y & z \\ l & m & n \end{vmatrix}$  is a skew-symmetric matrix then which of the following is equal to  $x+y+z$ ?

Select one:

- a+b+c
- l+m+n
- b-m
- c-l-n
- None of the above

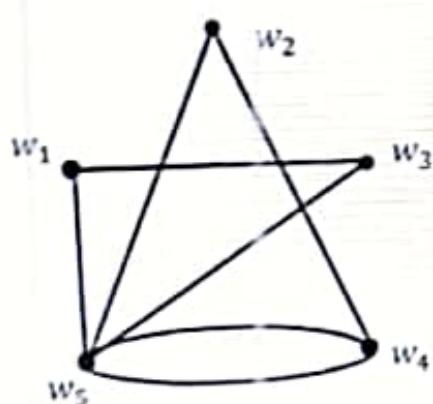
Next

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_3^0 15w^4 - 13w^2 + w \, dw = \boxed{\phantom{00}}$$

ing 2 graphs.



$H$

components  
ces  
es  
ce

omorphic?

$G$

1

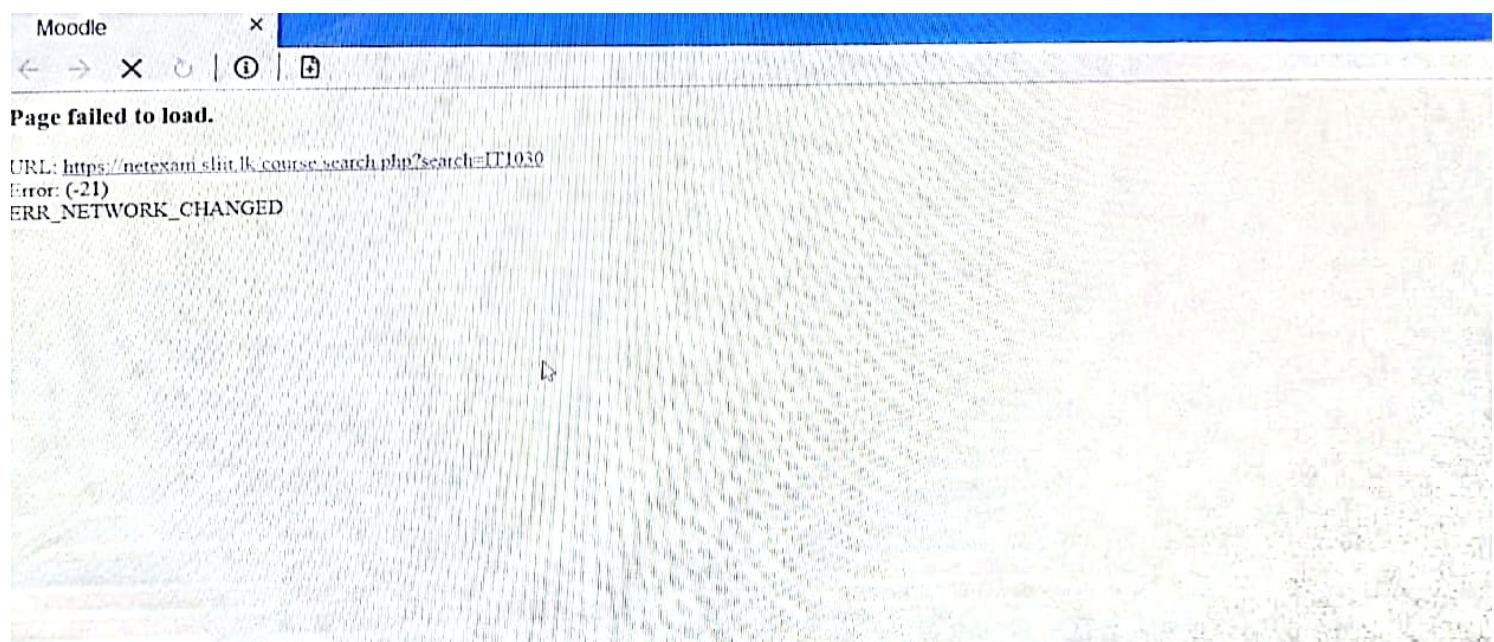
5

7

1

5

7



7

b) Consider the following. Find the values of the resulting matrix, when the foll operations are applied in the given order.

$$\begin{bmatrix} 1 & 2 & -1 & 1 & 0 & 0 \\ 2 & 1 & 1 & 0 & 1 & 0 \\ 3 & -1 & 2 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} a & b & c & j & k & l \\ d & e & f & m & n & o \\ g & h & i & p & q & r \end{bmatrix}$$

$$1. r'_2 = r_2 - 2r_1$$

$$2. r'_3 = r_3 - 3r_1$$

$$3. r'_2 = r_2 \times \frac{-1}{3}$$

$$4. r'_3 = r_3 + 7r_2$$

$$5. r'_3 = r_3 \times \frac{-1}{2}$$

$$a = \boxed{\phantom{00}} \quad b = \boxed{\phantom{00}} \quad c = \boxed{\phantom{00}}$$

$$d = \boxed{\phantom{00}} \quad e = \boxed{\phantom{00}} \quad f = \boxed{\phantom{00}}$$

$$g = \boxed{\phantom{00}} \quad h = \boxed{\phantom{00}} \quad i = \boxed{\phantom{00}}$$

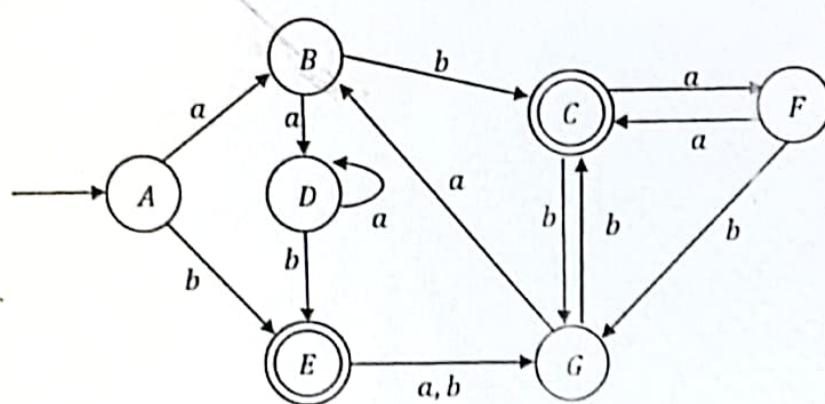
$$j = \boxed{\phantom{00}} \quad k = \boxed{\phantom{00}} \quad l = \boxed{\phantom{00}}$$

$$m = \boxed{\phantom{00}} \quad n = \boxed{\phantom{00}} \quad o = \boxed{\phantom{00}}$$

$$p = \boxed{\phantom{00}} \quad q = \boxed{\phantom{00}} \quad r = \boxed{\phantom{00}}$$

**Question 4**

Not yet answered

Marked out of  
1.00 Flag question**Consider the following finite state Machine A.**

What is the initial State?

 Choose... ▾

To what state does A go if abbbaaaa input to A in sequence starting from the initial state?

 Choose... ▾Find  $N(C, a)$  Choose... ▾Find  $N(E, b)$  Choose... ▾

Moodle X

→ X ⌂ ⓘ +

# NetExam

Sri Lanka Institute of Information Technology

Question 3  
Not yet answered  
Marked out of 1.00  
Flag question

Find the determinant of A.

$$A = \begin{bmatrix} 5 & 4 & 7 \\ 3 & -6 & 5 \\ 4 & 2 & -3 \end{bmatrix}$$

Answer: 336 I



# NetExam

Sri Lanka Institute of Information Technology

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_{-2}^1 5z^2 - 7z + 3 \, dz = \boxed{69/2}$$

ASUS

John is running a concession stand at a volleyball game. John is selling Noodle packs and Milo packets. Each Noodle pack costs 80LKR and each Milo packet costs 50LKR. At the end John had a total of 5700LKR. John sold a total of 90 Noodle packs and Milo Packets combined. Write down 2 equations to find, number of Noodle packs( $x$ )and Milo packets ( $y$ ) sold?

$$80 * X + 50 * Y = 5700$$

$$1 * X + 1 * Y = 90$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : 80 \quad q = : 50$$

$$r = : 1 \quad s = : 1$$

$$c = : 5700$$

$$d = : 90$$

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

$$B = \begin{pmatrix} x_1 \\ x_2 \\ x_3 \end{pmatrix}$$

$$C = \begin{pmatrix} 4 \\ 3 \\ k \end{pmatrix}$$

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

Find  $f''(-1)$ .

Hint: Differentiate the function and Substitute -1.

(Write your answer as a fraction. Eg: 23/2  
(No spaces should be in the answer))



Answer:

**Question 4**

Not yet answered

Marked out of  
1.00 Flag question

$$\text{Let } A = \begin{bmatrix} 1 & 2 \\ 3 & 0 \end{bmatrix}$$

$$\text{Find } B = A^2 - 3A + 2I$$

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$a = :$$

$$b = :$$

$$c = :$$

$$d = :$$

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

Find  $f'(-1)$ .

Hint : Differentiate the function and Substitute -1.

(Write your answer as a fraction. Eg: 23/2

No spaces should be in the answer) 

Answer:

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

Find  $f'( -1)$ .

Hint : Differentiate the function and Substitute -1.

(Write your answer as a fraction. Eg: 23/2

No spaces should be in the answer) 

Answer:

x

| i | +

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write factors should be there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

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

$$b = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

b) Write down the augmented matrix for the above 3 equations.

$$\left[ \begin{array}{cccc} a & b & c & d \\ e & f & g & h \\ n & o & r & s \end{array} \right]$$

Find  $f'(4)$  of the function  $f(x) = |8x|$ .

Answer =

If  $|A| = 71$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾

$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾

a) Represent the above system of linear equations in matrix form  $Ax = b$ .

$$A = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}, x = \begin{bmatrix} x \\ y \\ z \end{bmatrix}, b = \begin{bmatrix} p \\ q \\ r \end{bmatrix}$$

$$a = : 3 \quad b = : 2 \quad c = : -1$$

$$d = : 2 \quad e = : -1 \quad f = : 2$$

$$g = : 1 \quad h = : -3 \quad i = : -4$$

$$p = : 4$$

$$q = : 10$$

$$r = : 2$$

$$f(x) = \left(\frac{1}{x} - 3\right) \frac{x^2 + 3}{2x - 1}$$

Find  $f'(-1)$ .

Hint : Differentiate the function and Substitute -1.

(Write your answer as a fraction. Eg: 23/2

No spaces should be in the answer)

Answer:

1

Question 6  
Not yet answered  
Marked out of  
1.00  
Flag question

N Refers to all the positive integers. (Called as Natural Numbers)

$$f: N \rightarrow N \quad f(n) = (x - 2)(x + 3)$$

Is  $f$  a One to one function?

Is  $f$  an onto function?

Does  $f$  has an inverse function?

Yes  
No

C <sub>21</sub>	Choose... ▾
C <sub>22</sub>	Choose... ▾
C <sub>23</sub>	Choose... ▾
C <sub>31</sub>	Choose... ▾
C <sub>32</sub>	Choose... ▾
C <sub>33</sub>	Choose... ▾

**Find  $f'(-5)$  of the function  $f(x) = |7x|$ .**

Answer =

ered  
if  
tion

Consider the following linear system of equations.

$$\begin{aligned}x - 2y - z &= 4 \\3x - 2y + 3z &= 0 \\2x - 3y + 2z &= 5\end{aligned}$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{array}{|c|c|c|}\hline & & \\ \hline & & \\ \hline & & \\ \hline\end{array}$$

$$b =$$

b) Consider the following. Find the values of the resulting matrix, when the following elementary row operations are applied in the given order

If  $|A| = 71$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾



$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾

Moodle

NetExam  
Sri Lanka Institute of Information Technology

Question 2  
Not yet answered  
Marked out of 1.00  
Flag question

Consider the following function.

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

1. Find  $f'(-3)$  :

2. Find the definite integral of  $f(x)$  from -3 to 3 :  ▶

| (i) | +

# NetExam

---

Sri Lanka Institute of Information Technology

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

Find  $f'(-2)$ .

Hint : Differentiate the function and Substitute -2.  
(No spaces should be in the answer)

Answer: .6

I

Consider the function  $f: \mathbb{R} \rightarrow \mathbb{R}$      $f(x) = x^2 + 6$

a) Is this a one-to-one function?

Yes

No

b) Is this an on to function?

Yes

No

b) Does the inverse exist?

Yes

No

b) What is the inverse function?

$f^{-1}(x) = (x - 6)^{(1/2)}$

$f^{-1}(x) = 1/(x - 6)^{1/2}$

$f^{-1}(x) = (x - 6)^2$

Does not exist

3

ANSWERED  
out of  
1 QUESTION

If  $|A| = 71$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾



$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾



If  $|A| = 71$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾



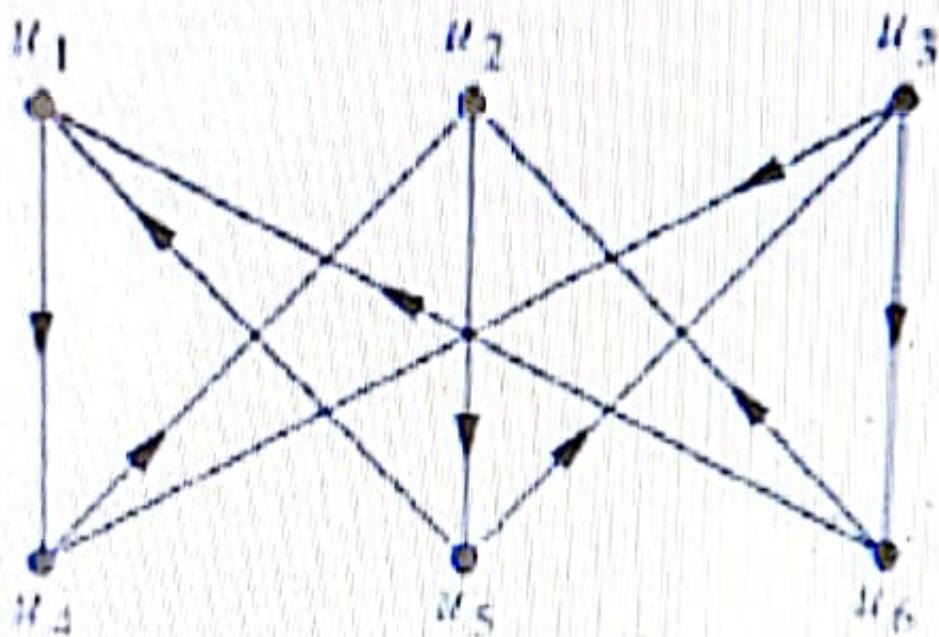
$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾

---

Consider the following Directed Graph.



Number of Edges = :

Total Indegree = :

Total Outdegree = :

Find the derivative of the following function.

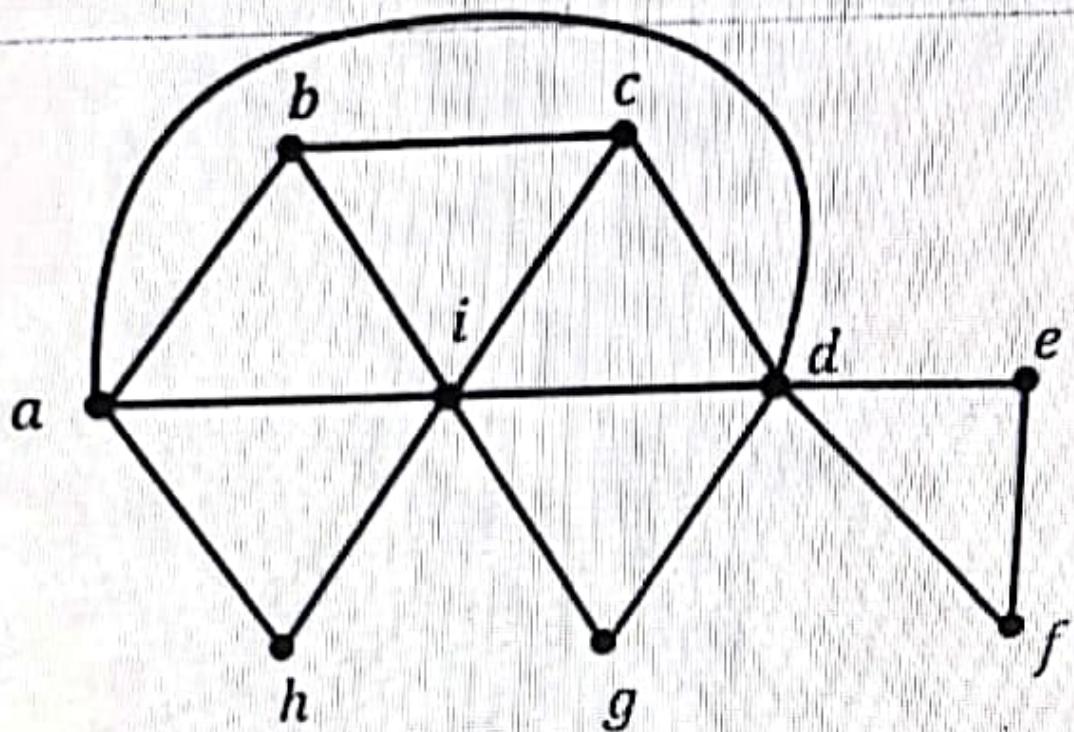
(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$y = \sqrt{x} + 8\sqrt[3]{x} - 2\sqrt[4]{x}$$

$$y' = \boxed{\phantom{0}} x^{\frac{1}{2}} + \boxed{\phantom{0}} x^{-\frac{2}{3}} - \frac{1}{2} x^{\frac{-3}{4}}$$



[Next page](#)



Euler Path =

Yes

No



Euler Circuit =

Yes

No

Hamilton Path =

Yes

No

Hamilton Circuit =

Yes

No

$$5x^2 - 5x - 5$$

$$(5x - 3)^2$$

Find the derivative of the following function.

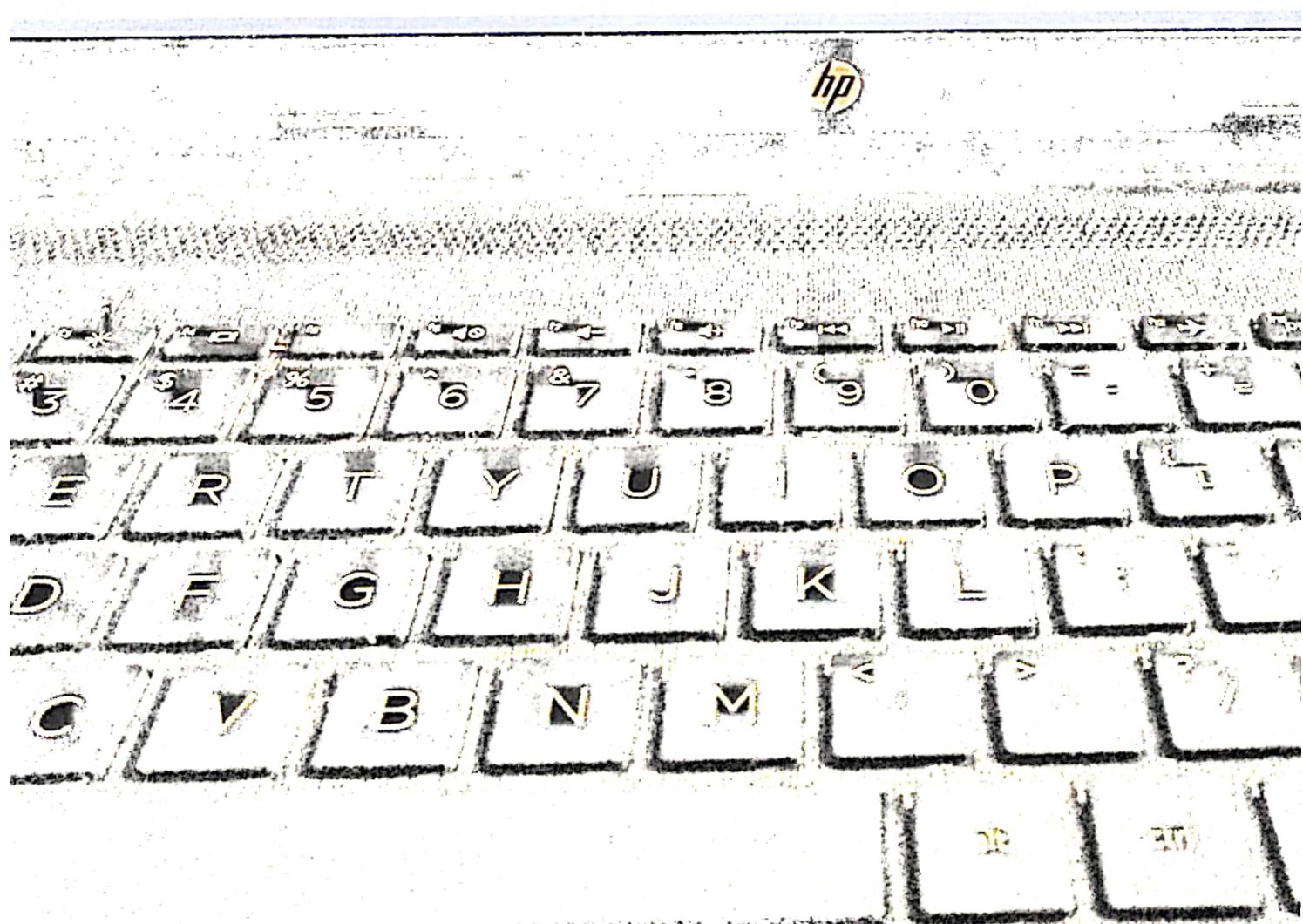
(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$y = \sqrt{x} + 8 \sqrt[3]{x} - 2 \sqrt[4]{x} .$$

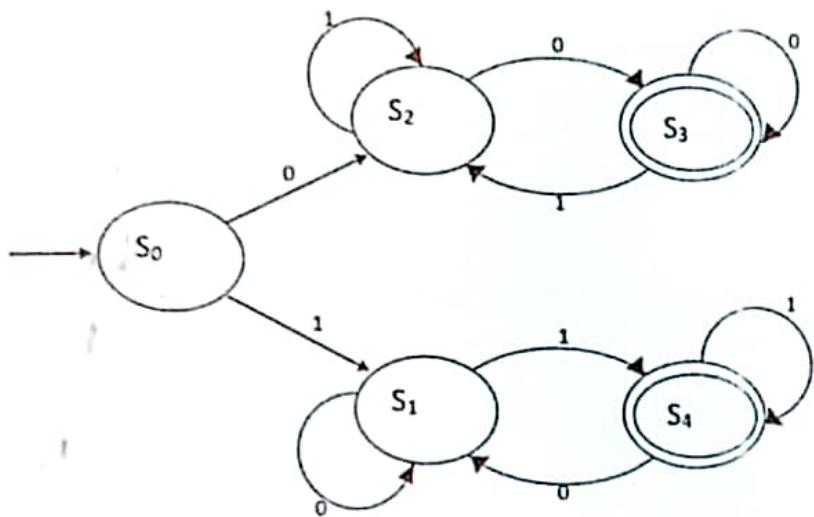
$$y' = \boxed{\phantom{0}} x^{\frac{1}{2}} + \boxed{\phantom{0}} x^{-\frac{2}{3}} - \frac{1}{2} x^{\frac{-1}{4}}$$



[Next page](#)



Following finite state machine A.



What is the initial State?

S0 ▾

To what state does A go if 1000111 input to A in sequence starting from the initial state?

S4 ▾

Find N(S2, 1)

S2 ▾

Find N(S1, 0)

S1 ▾

X |  NetExaunn  
Sri Lanka Institute of Information Technology

sweered  
ut of  
uestion

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

Find  $B = A^2 - 3A + 2I$

$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

a = : 6

b = : -4

c = : -6

d = : 8

8. De Morgan's Law
9. Absorption Law
10. Inverse Law

$$X = (\overline{A \cdot \bar{B} \cdot C} + B)(B)(\overline{A + \bar{C}})$$

$$X = (\bar{A} + \bar{\bar{B}} + \bar{C} + B)(B)(\bar{A} \cdot \bar{C}) \quad 8$$

$$X = (\bar{A} + B + \bar{C} + B)(B)(\bar{A} \cdot C) \quad 1$$

$$X = (\bar{A} + B + \bar{C})(B)(\bar{A} \cdot C) \quad 2$$

$$X = (\bar{A}B + BB + B\bar{C})(\bar{A} \cdot C) \quad 7$$

$$X = (\bar{A}B + B + B\bar{C})(\bar{A} \cdot C) \quad 2$$

$$X = (\bar{A}\bar{A}BC + \bar{A}BC + \bar{A}BCC\bar{C}) \quad 7$$

$$X = (\bar{A}BC + \bar{A}BC + 0) \quad 2$$

$$X = (\bar{A}BC + \bar{A}BC) \quad 3$$

$$X = \bar{A}B(C) \quad 7$$

Michael Perez has a total of \$2000 on deposit with two financial institutions. One pays interest at the rate of 6% per year, whereas the other pays interest at the rate of 8% per year. If Michael earned a total of \$144 in interest during the year, set down 2 equations to find how much does he have on deposit in each.

Assume Michael has deposited X amount in the institution, which gives 6% interest.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$\boxed{6/100} * X + \boxed{8/100} * Y = 144$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given information)

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{1} \quad q = : \boxed{1}$$

$$r = : \boxed{-1} \quad s = : \boxed{1}$$

$$c = : \boxed{1}$$

$$d = : \boxed{144}$$

b) Find the cofactor matrix(C) of A.

$$C = \begin{bmatrix} a1 & a2 \\ a3 & a4 \end{bmatrix}$$

x



G

Number of Components

1

Number of Vertices

7

Number of Edges

□

Degree Sequence

□, □, □

H

1

7

□

□, □, □, □, □, □, □

H

22 23 24  
29 30

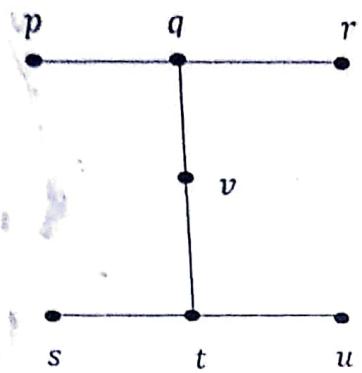
Are they isomorphic?

G and H are

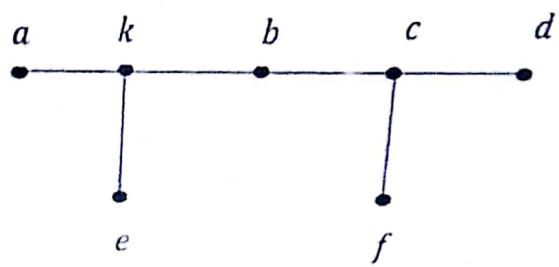
- isomorphic
- Not Isomorphic

[Next page](#)

Consider the following 2 graphs.



G



H

Number of Components

1

Number of Vertices

7

1

7

$\equiv Q_1$

Finish at

Time left

1	2
8	9
15	16
22	23
29	30

Michael Perez has a total of \$2000 on deposit with two financial institutions. One pays interest at the rate of 6% per year, whereas the other pays interest at the rate of 8% per year. If Michael earned a total of \$144 in interest during a single year, write down 2 equations to find how much does he have on deposit in each institution?

Assume Michael has deposited X amount in the institution, which gives 6% interest.

$$*X + \quad *Y =$$

$$8 \quad *X + \boxed{d} \quad *Y = 144$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = :$$

$$r = : \quad s = :$$

$$c = :$$

$$d = :$$

Find the derivative of the following function.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$y = \sqrt{x} + 8\sqrt[3]{x} - 2\sqrt[4]{x}.$$

$$y' = \boxed{1/2x} x^{-1/2} + \boxed{8/3x} x^{-2/3} - 1/2 x^{\boxed{-3/4}}$$



[Next page](#)

d) Use the inverse matrix to find the solution of the above

$$\begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix} \begin{bmatrix} p \\ q \\ r \end{bmatrix}$$

$$a = \boxed{\phantom{000}} \quad b = \boxed{\phantom{000}} \quad c = \boxed{\phantom{000}}$$

$$d = \boxed{\phantom{000}} \quad e = \boxed{\phantom{000}} \quad f = \boxed{\phantom{000}}$$

$$g = \boxed{\phantom{000}} \quad h = \boxed{\phantom{000}} \quad i = \boxed{\phantom{000}}$$

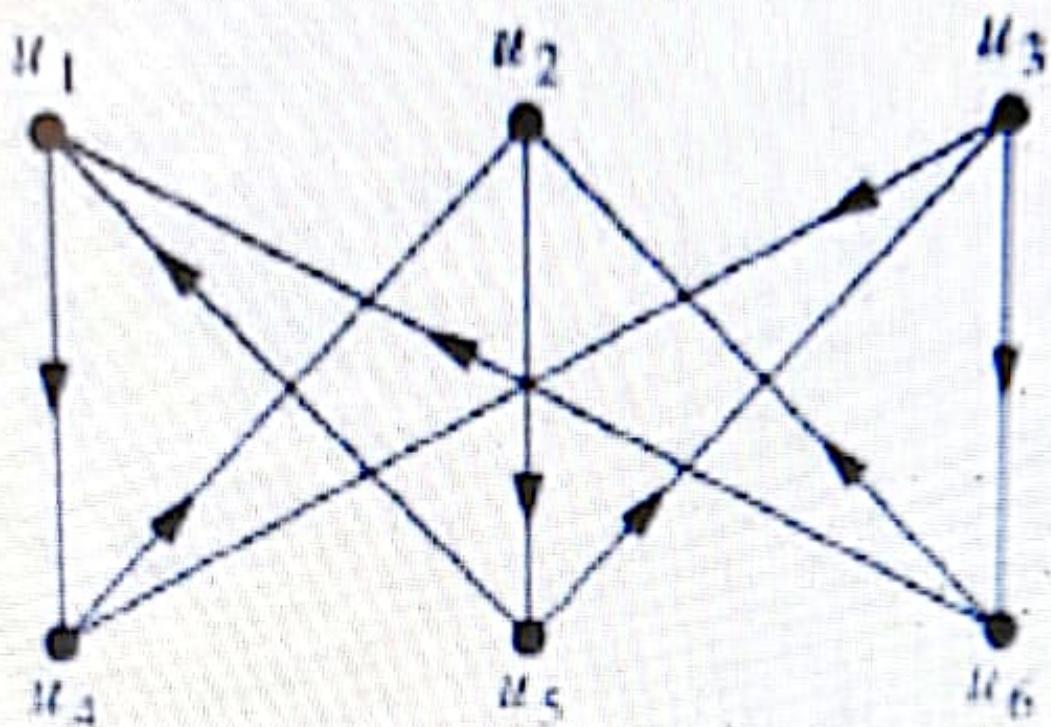
$$p = \boxed{\phantom{000}} \quad q = \boxed{\phantom{000}} \quad r = \boxed{\phantom{000}}$$

$$x = \boxed{\phantom{000}}$$

$$y = \boxed{\phantom{000}}$$

$$z = \boxed{\phantom{000}}$$

Consider the following Directed Graph.



Number of Edges = : 8 | I

Total Indegree = :

Total Outdegree = :

$$\frac{1}{2}x^{-\frac{1}{2}} + \frac{8}{3}x^{-\frac{2}{3}} - \frac{1}{2}x^{-\frac{3}{4}}$$

11  
Answered  
out of  
question

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

and  $B=3A$ ;  $C=B+2A-5I$ . Find matrix D such that  $D=2A+B-C$ .

Assume I is the identity matrix.

$$D = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

$$a = : [30]$$

$$b = : [10]$$

$$c = : [0]$$

$$d = : [5]$$

$$e = : [10]$$

$$f = : [-5]$$

$$g = : [15]$$

$$h = : [10]$$

$$i = : [20]$$

le

x

8  
answered  
out of  
question

X



Consider the function  $f: \mathbb{R} \rightarrow \mathbb{R}$   $f(x) = x^2$ .

a) Is this a one-to-one function?

Yes

No

b) Is this an on to function?

Yes

No

b) Does the inverse exist?

Yes

No

b) What is the inverse function?

$f^{-1}(x) = x^{1/2}$

$f^{-1}(x) = 1/x^2$

$f^{-1}(x) = x-1$

Does not exist

Michael Perez has a total of \$2000 on deposit with two financial institutions. One pays interest at the rate of 6% per year, whereas the other pays interest at 8% per year. If Michael earned a total of \$144 in interest during a single year, set down 2 equations to find how much does he have on deposit in each institution.

Assume Michael has deposited X amount in the institution, which gives 6% interest.

$$1 * X + 1 * Y = 2000$$

$$\frac{6}{100} * X + \frac{8}{100} * Y = 144$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{1} \quad q = : \boxed{1}$$

$$r = : \boxed{-1} \quad s = : \boxed{1}$$

$$c = : \boxed{\phantom{0}}$$

$$d = : \boxed{\phantom{0}}$$

b) Find the cofactor matrix(C) of A.

$$C = \begin{bmatrix} a_1 & a_2 \\ a_3 & a_4 \end{bmatrix}$$

Consider the following function.

$$f(x) = x^4 - x^2 + 20$$

1. Find  $f'(-4)$  : [ -248 ]
2. Find the definite integral of  $f(x)$  from -3 to 3 : [ 199.2 ]  
(Round your answer to one decimal place)

Moodle

x



**Page failed to load.**

URL: [https://netexam.sliit.lk/mod\\_quiz/processattempt.php?cmid=5688](https://netexam.sliit.lk/mod_quiz/processattempt.php?cmid=5688)

Error: (-106)

ERR\_INTERNET\_DISCONNECTED

John is running a concession stand at a volleyball game. John sold Noodle and Milo packets. Each Noodle pack costs 80LKR and each Milo Pack costs 100LKR. At the end John had a total of 5700LKR. John sold a total of 90 packets combined. Write down 2 equations to find the Noodle packs ( $x$ ) and Milo packets ( $y$ ) sold?

$$[ \boxed{ } \quad \boxed{ } ] * X + [ \boxed{ } \quad \boxed{ } ] * Y = [ \boxed{ } ]$$

$$[ \boxed{ } \quad \boxed{ } ] * X + [ \boxed{ } \quad \boxed{ } ] * Y = 90$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the question)

$$Ax = b$$

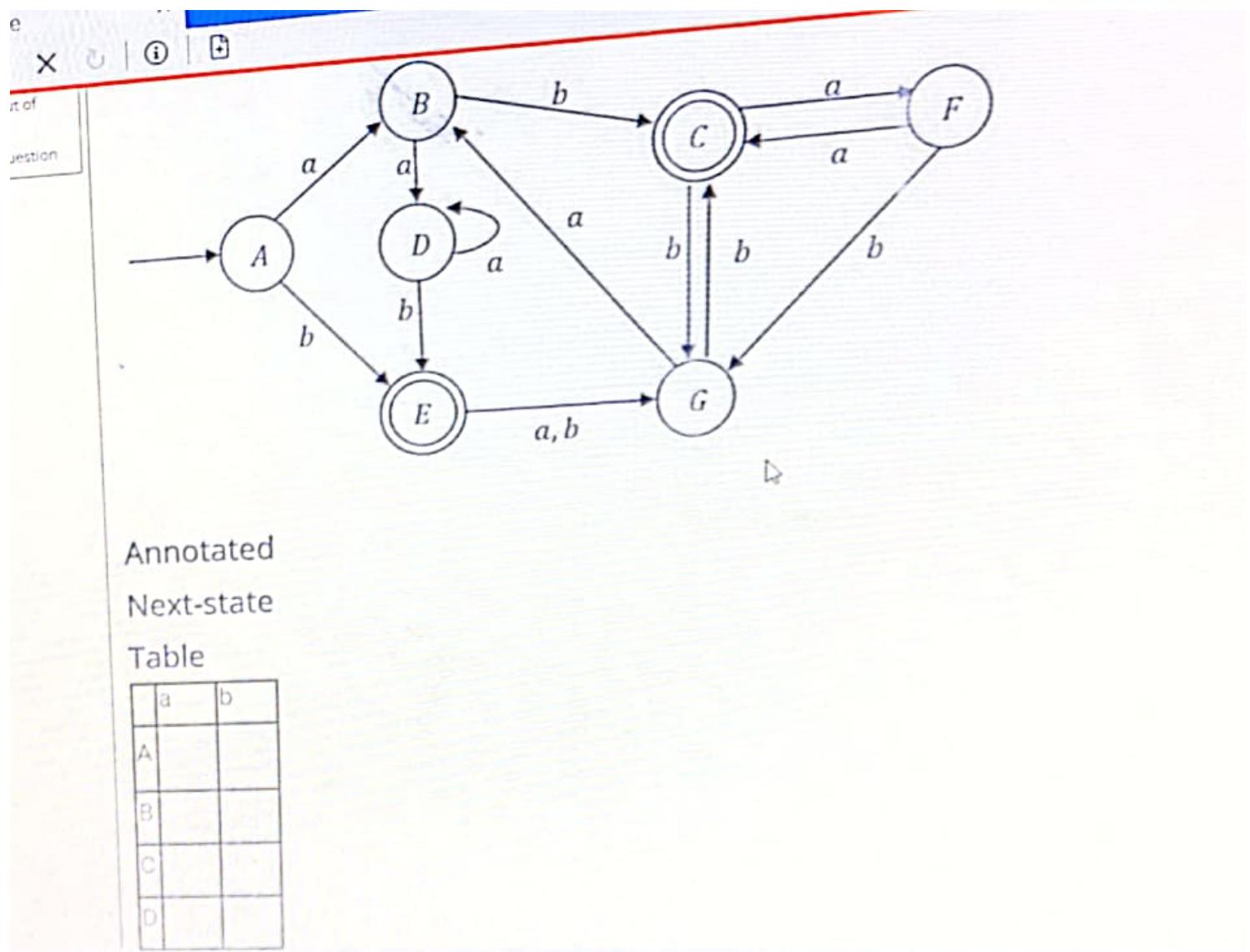
$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = :$$

$$r = : \quad s = :$$

$$c = :$$

$$d = :$$



Consider the following function.

$$f(x) = x^4 - x^2 + 20$$

1. Find  $f'(-4)$  : -248

2. Find the definite integral of  $f(x)$  from -3 to 3 : 199.4

(Round your answer to one decimal place)

n 7  
answered  
1 out of  
; question

Consider the following linear system of equations.

$$\begin{aligned}x + 2y - 2z &= 2 \\2x + y - z &= -2 \\3x + 2y - z &= -1\end{aligned}$$

1. Write down the augmented matrix for the above system of linear equations and reduce that to echelon form.

$$\left[ \begin{array}{cccc} a & b & c & p \\ d & e & f & q \\ g & h & i & r \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_1 & b_1 & c_1 & p_1 \\ d_1 & e_1 & f_1 & q_1 \\ g_1 & h_1 & i_1 & r_1 \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_2 & b_2 & c_2 & p_2 \\ d_2 & e_2 & f_2 & q_2 \\ g_2 & h_2 & i_2 & r_2 \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_3 & b_3 & c_3 & p_3 \\ d_3 & e_3 & f_3 & q_3 \\ g_3 & h_3 & i_3 & r_3 \end{array} \right]$$

$$r'_2 = r_2 - 2r_1 \quad r'_3 = r_3 - 3r_1 \quad r'_3 = r_3 - \frac{4}{3}r_2$$

$$a = : \boxed{1} \quad a1 = : \boxed{1} \quad a2 = : \boxed{\phantom{0}} \quad a3 = : \boxed{\phantom{0}}$$

$$b = : \boxed{2} \quad b1 = : \boxed{2} \quad b2 = : \boxed{\phantom{0}} \quad b3 = : \boxed{\phantom{0}}$$

$$c = : \boxed{-2} \quad c1 = : \boxed{-2} \quad c2 = : \boxed{\phantom{0}} \quad c3 = : \boxed{\phantom{0}}$$

$$d = : \boxed{2} \quad d1 = : \boxed{1} \quad d2 = : \boxed{\phantom{0}} \quad d3 = : \boxed{\phantom{0}}$$

$$e = : \boxed{2} \quad e1 = : \boxed{\phantom{0}} \quad e2 = : \boxed{\phantom{0}} \quad e3 = : \boxed{\phantom{0}}$$

$$f = : \boxed{1} \quad f1 = : \boxed{\phantom{0}} \quad f2 = : \boxed{\phantom{0}} \quad f3 = : \boxed{\phantom{0}}$$

$$g = : \boxed{-1} \quad g1 = : \boxed{\phantom{0}} \quad g2 = : \boxed{\phantom{0}} \quad g3 = : \boxed{\phantom{0}}$$

$$h = : \boxed{-2} \quad h1 = : \boxed{\phantom{0}} \quad h2 = : \boxed{\phantom{0}} \quad h3 = : \boxed{\phantom{0}}$$

$$c_{23} = 11$$

$$c_{22} = -3$$

$$c_{21} = 21$$

$$c_{13} = 7 \quad c_{33} = -31$$

$$c_{12} = 11 \quad c_{32} = 2$$

$$c_{11} = -6 \quad c_{31} = -14$$

**SLIIT** Sri Lanka Institute of Information Technology

Question 13  
Not yet answered  
Marked out of 1.00  
Flag question

Consider the following finite state Machine A.

```
graph LR; Start(( )) --> A((A)); A -- 0 --> B((B)); A -- 1 --> E(((E))); B -- 0 --> C((C)); B -- 1 --> D(((D))); D -- 0 --> C; D -- 1 --> E; C -- 0 --> F((F)); C -- 1 --> E; E -- "0,1" --> O(((O))); O -- "0,1" --> F;
```

What is the initial State? **A**

To what state does A go if 1101011100 input to A in sequence starting from the initial state?

Find  $N(C, 1)$  **0**

Find  $N(F, 0)$  **0**

Moodle

NetExam  
Sri Lanka Institute of Information Technology

Question 7  
Not yet answered  
Marked out of 1.00  
Flag question

Let  $A = \begin{bmatrix} -1 & 2 \\ 3 & 1 \end{bmatrix}$ .

Find  $B = A^2 - 3A + 2I$

$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$

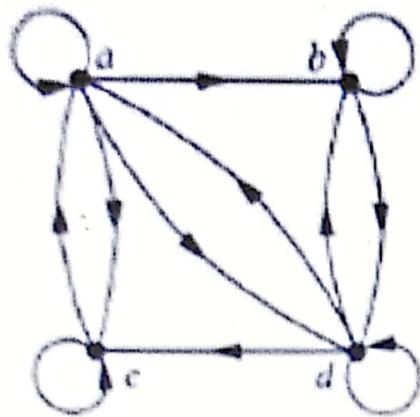
a = :

b = :

c = :

d = :

Consider the following Directed Graph.



Number of Edges = :

Total Indegree = :

Total Outdegree = :

**Question 9**

Not yet answered

Marked out of  
1.00 Flag question

A theater has a seating capacity of 1000 and charges \$4 for children and \$5 for adults. At a certain screening with full attendance the receipts totaled \$4300. Write 2 equations to find the attended number of children and adults.

Assume that number of children is denoted by X.

$$1 \quad * X + 1 \quad * Y = 1000$$

$$4 \quad * X + 5 \quad * Y = 4300$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : 1 \quad q = : 1$$

$$r = : 4 \quad s = : 5$$

$$c = : \boxed{\phantom{00}}$$

$$d = :$$

b) Find the cofactor matrix(C) of A.

Let  $A = \begin{bmatrix} -1 & 2 \\ 3 & 1 \end{bmatrix}$ .

Find  $B = A^2 - 3A + 2I$

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

$$a = : 12$$

$$b = : -6$$

$$c = : -9$$

$$d = : 6$$

Question 3  
Not yet answered  
Marked out of  
10  
Flag question

If  $|A| = 71$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$

$C_{12}$

$C_{13}$

$C_{21}$

$C_{22}$

$C_{23}$

$C_{31}$

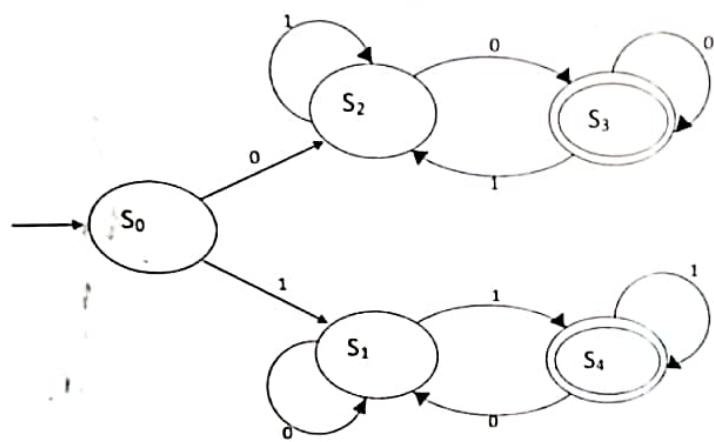
$C_{32}$

If  $A = \begin{vmatrix} a & b & c \\ x & y & z \\ l & m & n \end{vmatrix}$  is a skew-symmetric matrix

Select one:

- a+b+c
- l+m+n
- b-m
- c-l-n
- None of the above

Obtain the Annotated Next-state Table for the following Finite State Machine.

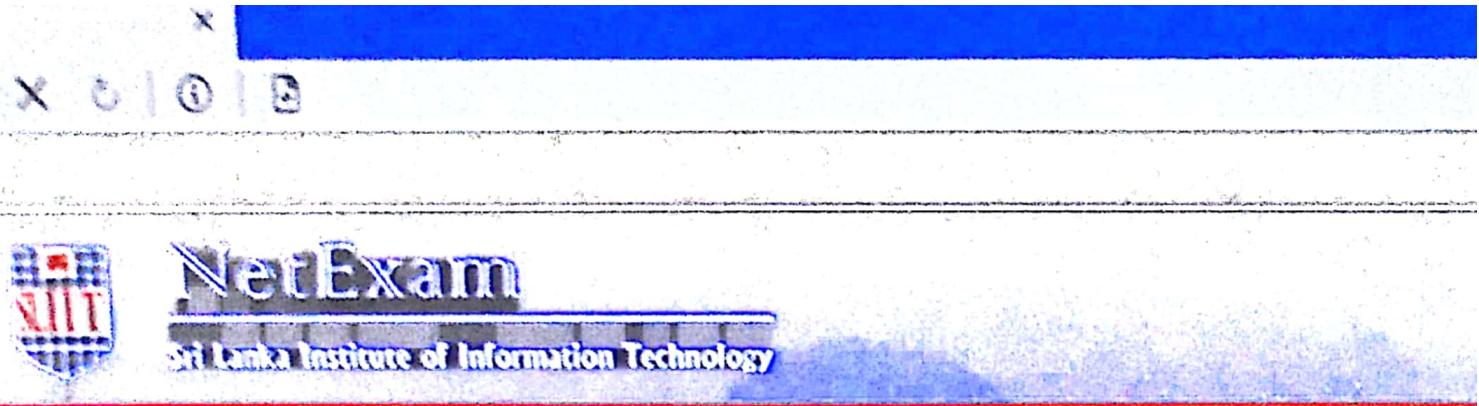


Annotated  
Next-state  
Table

	1	0
s0		

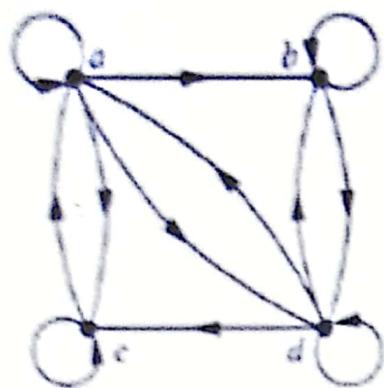
13  
0

6  
5



8  
Answered  
out of  
question

Consider the following Directed Graph.



Number of Edges = :

Total Indegree = :  

Total Outdegree = :

$$D = sI$$

$$= s \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} = \begin{bmatrix} s & 0 & 0 \\ 0 & s & 0 \\ 0 & 0 & s \end{bmatrix}$$

$$a = s \quad d = 0 \quad g = 0$$

$$b = 0 \quad e = s \quad h = 0$$

$$c = 0 \quad f = 0 \quad i = s$$

$$(\overline{A+B})(\overline{C+B}) (B + (\overline{B+C})) + A + B + C.$$

$$(\overline{A}\overline{B})(\overline{C}\overline{B}) (B + (\overline{B}\overline{C})) + A + B + C.$$

$$\overline{A} \cdot \overline{C} \cdot \overline{B} \cdot \overline{B} (B + \overline{B} \cdot \overline{C}) + A + B + C$$

$$\overline{A} \cdot \overline{C} \cdot \overline{B} (B + \overline{B} \cdot \overline{C}) + A + B + C$$

$$\overline{A} \cdot \overline{C} \cdot \overline{B} \cdot B + \overline{A} \cdot \overline{C} \cdot \overline{B} \cdot \overline{B} \cdot \overline{C} + A + B + C$$

$$\overline{A} \cdot \overline{C} \cdot 0 + \overline{A} \cdot \overline{B} \cdot \overline{C} + A + B + C.$$

$$\overline{A} \cdot \overline{B} \cdot \overline{C} + A + B + C.$$

$$\begin{pmatrix} a & b & c \\ x & y & z \\ 1 & m & n \end{pmatrix} = \begin{pmatrix} a & x & 1 \\ b & y & m \\ c & z & n \end{pmatrix} = \begin{pmatrix} -a & -x & -1 \\ -b & -y & -m \\ -c & -z & -n \end{pmatrix}$$

$$x + y + z = -(b + y + m)$$

---

$$\text{Let } A = \begin{bmatrix} 1 & -5 & 4 \\ 2 & 3 & 1 \\ 3 & 0 & 5 \end{bmatrix}$$

and  $B=3A$ ;  $C=B+2A-5I$ . Find matrix D such that  $D=2A+B-C$ .

Assume I is the identity matrix.

$$D = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

$$a = :$$

$$b = :$$

$$c = :$$

$$d = :$$

$$e = :$$

$$f = :$$

$$g = :$$



# NetExam

Sri Lanka Institute of Information Technology

Question 5

Not yet answered

Marked out of  
1.00

Flag question

Find  $f'(-4)$  of the function  $f(x) = |4x|$ .

Answer =

Next page



## SOLVING STEPS

# Matrices

$$A = \begin{bmatrix} 9 & 8 & 5 \\ 7 & -9 & 7 \\ 7 & 5 & -5 \end{bmatrix}$$



↓ Evaluate the determinant

$$| A | = 1252$$

Show Solving Steps →



# NetExam

Sri Lanka Institute of Information Technology

Question 7

Not yet answered

Marked out of

0

Flag question

Consider the following linear system of equations.

$$x + 2y - z = 1$$

$$-x + 3y - z = -4$$

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

1. Write down the augmented matrix for the above system of linear equations and reduce that to echelon form.

$$\begin{bmatrix} a & b & c & p \\ d & e & f & q \\ g & h & i & r \end{bmatrix} \rightarrow \begin{bmatrix} a_1 & b_1 & c_1 & p_1 \\ d_1 & e_1 & f_1 & q_1 \\ g_1 & h_1 & i_1 & r_1 \end{bmatrix} \rightarrow \begin{bmatrix} a_2 & b_2 & c_2 & p_2 \\ d_2 & e_2 & f_2 & q_2 \\ g_2 & h_2 & i_2 & r_2 \end{bmatrix} \rightarrow \begin{bmatrix} a_3 & b_3 & c_3 & p_3 \\ d_3 & e_3 & f_3 & q_3 \\ g_3 & h_3 & i_3 & r_3 \end{bmatrix}$$

$$r'_2 = r_2 + r_1$$

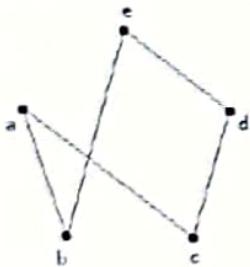
$$r'_3 = r_3 + 2r_1$$

$$r'_3 = r_3 - r_2$$

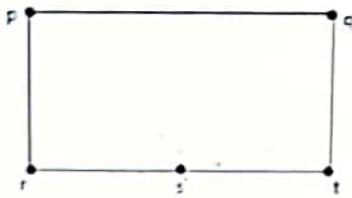
$$a = : \quad a1 = : \quad a2 = : \quad a3 = :$$

$$b = : \quad b1 = : \quad b2 = : \quad b3 = :$$

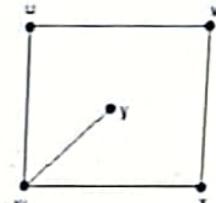
Which of the following graphs are isomorphic?



G1



G2



G3

Select one:

- G1 and G3
- G1 and G2
- G2 and G3
- None of the pairs are isomorphic



## Quiz 1

Finish attempt

Time left 1:01

1	2	
▲		
8	9	10
15	16	17
22	23	24
29	30	

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.



$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

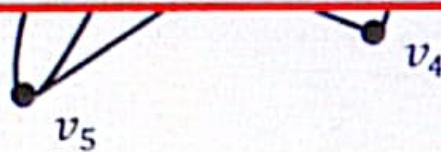
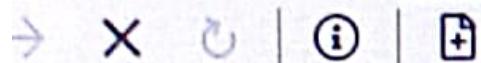
$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = :$$

$$r = : \quad s = :$$

idle

x


 $v_1 \quad v_2 \quad v_3 \quad v_4 \quad v_5$ 

$v_1$	$a$	$b$	$c$	$d$	$e$
$v_2$	$f$	$g$	$h$	$i$	$j$
$v_3$	$k$	$l$	$m$	$n$	$o$
$v_4$	$p$	$q$	$r$	$s$	$t$
$v_5$	$u$	$v$	$w$	$x$	$y$

$a = :$    $b = :$    $c = :$    $d = :$    $e = :$

$f = :$    $g = :$    $h = :$    $i = :$    $j = :$

$k = :$    $l = :$    $m = :$    $n = :$    $o = :$

$p = :$    $q = :$    $r = :$    $s = :$    $t = :$

$u = :$    $v = :$    $w = :$    $x = :$    $y = :$

c) Degree sequence of a graph is 8, 6, 4, 4, 2, 2, 1, 1.

Does this graph exist?

Yes

No

Number of Edges of the above graph = :

Does it has an Euler path?

Yes

No

To buy a computer system, a customer can choose one of 5 monitors, one of 8 keyboards, one of 7 computers and one of 6 printers.

a) Determine the number of possible systems that a customer can choose from.

Answer = : 1680

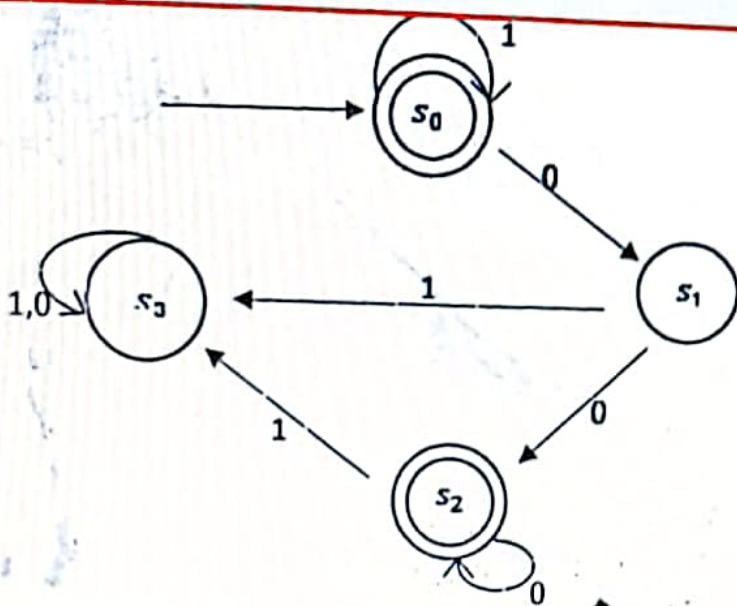
b) Another customer wants to buy a monitor or 2 keyboards or a computer.

Find the possible ways of choosing monitor, keyboard and computer.

Answer = : 40

Next page

| (i) | +



What is the initial State?

To what state does A go if 1000111 input to A in sequence starting from the initial state?

Find  $N(S2, 0)$

Find  $N(S3, 1)$

Choose... ▾

Choose... ▾

Choose..

- S1
- S0
- S2
- S3

Next page

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{0}} \quad q = : \boxed{\phantom{0}}$$

$$r = : \quad s = :$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{00}} \quad q = : \boxed{\phantom{00}}$$

$$r = : \boxed{\phantom{00}} \quad s = : \boxed{\phantom{00}}$$

$$c = : \boxed{\phantom{00}}$$

$$d = : \boxed{\phantom{00}}$$

b) Find the cofactor matrix(C) of A.

$$C = \begin{bmatrix} a1 & a2 \\ a3 & a4 \end{bmatrix}$$

$$a1 = : \boxed{\phantom{00}} \quad a2 = : \boxed{\phantom{00}}$$

$$a3 = : \boxed{\phantom{00}} \quad a4 = : \boxed{\phantom{00}}$$

c) Find the determinant of A. :

15  
22 2  
29 30

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

$$C_{11} = (-1)^2 m_{11} = + (-12 + 6) = -6 //$$

$$C_{12} = (-1)^3 m_{12} = - (-15 + 4) = +11 //$$

$$C_{13} = (-1)^4 m_{13} = + (15 - 8) = +7 //$$

$$C_{21} = (-1)^3 m_{21} = - (-21 - 0) = +21 //$$

$$C_{22} = (-1)^4 m_{22} = + (-3 - 0) = -3 //$$

$$C_{23} = (-1)^5 m_{23} = - (3 - 14) = +11 //$$

$$C_{31} = (-1)^4 m_{31} = + (-14 - 0) = -14 //$$

$$C_{32} = (-1)^5 m_{32} = - (-2 - 0) = +2 //$$

$$C_{33} = (-1)^6 m_{33} = + (4 - 35) = -31 //$$

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = :$$

$$r = : \quad s = :$$



During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{\phantom{0}}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{0}} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$



1	2
9	10
17	18
25	26

Consider the following linear system of equations.

$$\begin{aligned}x - 2y + z &= 0 \\2x + 3y - 4z &= -4 \\3x - 13y + 4z &= -11\end{aligned}$$

1. Write down the augmented matrix for the above system of linear equations and reduce that to echelon form.

$$\left[ \begin{array}{cccc} a & b & c & p \\ d & e & f & q \\ g & h & i & r \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_1 & b_1 & c_1 & p_1 \\ d_1 & e_1 & f_1 & q_1 \\ g_1 & h_1 & i_1 & r_1 \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_2 & b_2 & c_2 & p_2 \\ d_2 & e_2 & f_2 & q_2 \\ g_2 & h_2 & i_2 & r_2 \end{array} \right] \rightarrow \left[ \begin{array}{cccc} a_3 & b_3 & c_3 & p_3 \\ d_3 & e_3 & f_3 & q_3 \\ g_3 & h_3 & i_3 & r_3 \end{array} \right]$$

$$r'_2 = r_2 - 2r_1$$

$$r'_3 = r_3 - 3r_1$$

$$r'_3 = r_3 + r_2$$

$$a = : \quad a_1 = : \quad a_2 = : \quad a_3 = :$$

$$b = : \quad b_1 = : \quad b_2 = : \quad b_3 = :$$

$$c = : \quad c_1 = : \quad c_2 = : \quad c_3 = :$$

$$d = : \quad d_1 = : \quad d_2 = : \quad d_3 = :$$

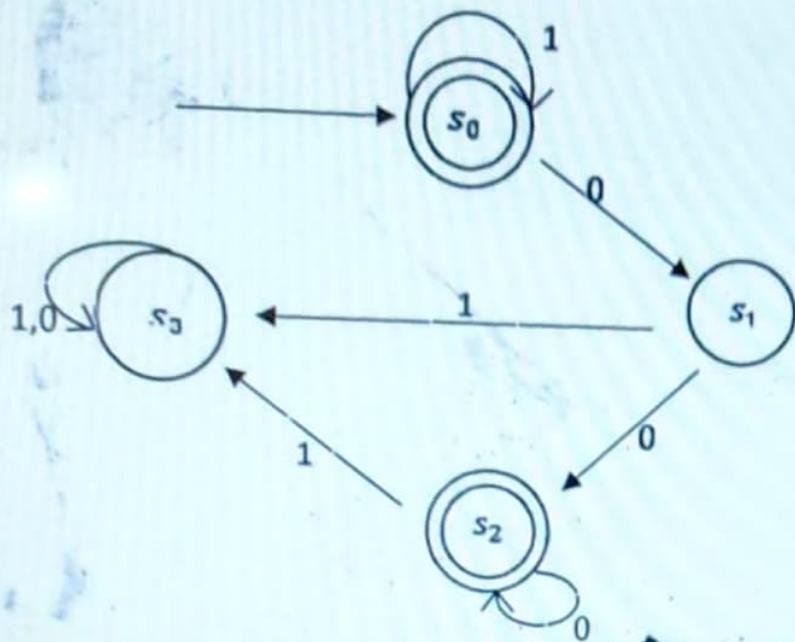
$$e = : \quad e_1 = : \quad e_2 = : \quad e_3 = :$$

$$f = : \quad f_1 = : \quad f_2 = : \quad f_3 = :$$

$$g = : \quad g_1 = : \quad g_2 = : \quad g_3 = :$$

$$h = : \quad h_1 = : \quad h_2 = : \quad h_3 = :$$

Consider the following finite state Machine A.

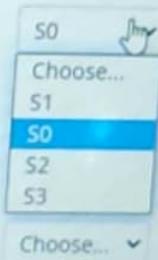


What is the initial State?

To what state does A go if 1000111 input to A in sequence starting from the initial state?

Find  $N(S2, 0)$

Find  $N(S3, 1)$



Question 12  
Not yet answered  
Marked out of  
1.00  
 Flag question

Michael Perez has a total of \$2000 on deposit with two financial institutions. One pays interest at the rate of 6% per year, whereas the other pays interest at the rate of 8% per year. If Michael earned a total of \$144 in interest during a single year, write down 2 equations to find how much does he have on deposit in each institution?

Assume Michael has deposited X amount in the institution, which gives 6% interest.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{2000}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{144}$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{0}} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$

$$c = : \boxed{\phantom{0}}$$

Find the determinant of A. :

d) Find the adjoint of A.

$adj A = \begin{bmatrix} p & q \\ r & s \end{bmatrix}$

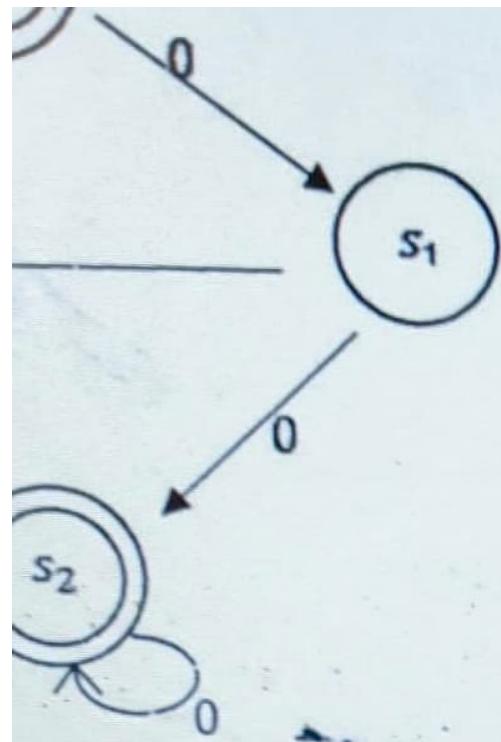
p = :  q = :

r = :  s = :

d) Find the inverse of A and hence find the number of children and adults.

X = :

Y = :



00111 input to A in sequence starting from the

S0 ▾

S3 ▾

S2 ▾

S3 ▾



Next page

$$f'(x) = 4x^3 - 2x$$

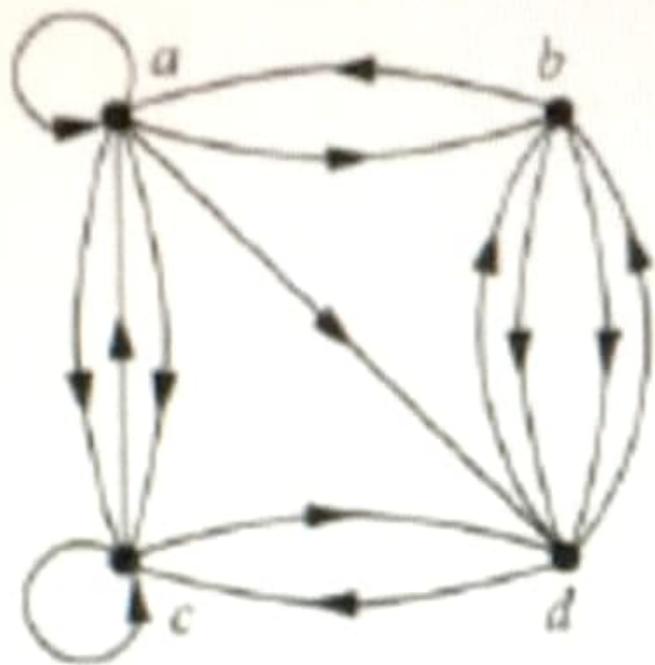
$$1) \quad 4(-4)^3 - 2(-4)$$

$$\begin{array}{r} 4 \times (-64) + 8 \\ -256 + 8 = -248 // \end{array}$$

$$2) \quad f(x^4 - x^2 + 20)$$

$$\begin{aligned} & [3x^2 - 2x] \xrightarrow{-3} [3(3)^2 - 2 \times 3] \\ & \qquad \qquad \qquad \xleftarrow{-3} -[3(-3)^2 - 2(-3)] \\ & = (27 - 6) - (27 + 6) \\ & = -12 // \end{aligned}$$

Consider the following Directed Graph.



Number of Edges = :

Total Indegree = :

Total Outdegree = :

Consider the following linear system of equations

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$

(If your answer is not an integer, then write it as a fraction.)

(Simplify your answer as much as possible. All common factors should be there in numerator and denominator.)

a) Write down the above three equations in matrix form  $A\vec{x} = \vec{b}$ .

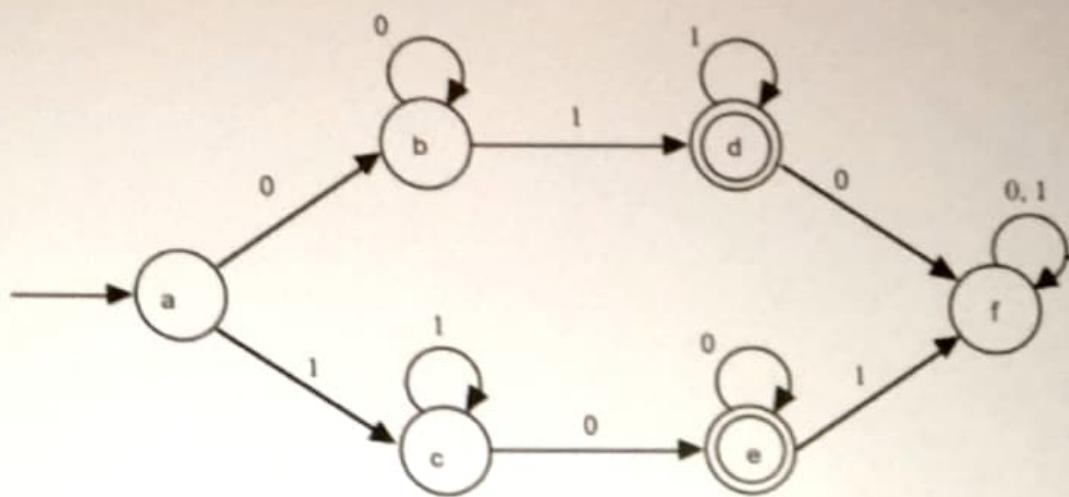
$$A = \begin{matrix} 1 & 2 & -1 \\ 2 & -1 & 3 \\ 3 & 1 & 2 \end{matrix}$$

$$\vec{b} = \begin{matrix} 4 \\ 3 \\ 7 \end{matrix}$$

b) Write down the augmented matrix for the above system.

$$\left[ \begin{array}{ccc|c} 1 & 2 & -1 & 4 \\ 2 & -1 & 3 & 3 \\ 3 & 1 & 2 & 7 \end{array} \right]$$

Obtain the Annotated Next-state Table for the following Finite State Machine.



Annotated  
Next-state  
Table

	1	0
a		
b		
c		
d		
e		
f		

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{10}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{0}} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$

Consider the following linear system of equations.

$$x_1 + 2x_2 - x_3 = 4$$

$$2x_1 - x_2 + 3x_3 = 3$$

$$3x_1 + x_2 + 2x_3 = k$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors shared in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

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

$$b = \begin{bmatrix} 4 \\ 3 \\ \boxed{\phantom{0}} \end{bmatrix}$$

b) Write down the augmented matrix for the above 3 equations.

$$\left[ \begin{array}{cccc} a & b & c & d \\ e & f & g & h \\ p & q & r & s \end{array} \right]$$

Consider the following function.

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

1. Find  $f'(-3)$  :

2. Find the definite integral of  $f(x)$  from -3 to 3 :

**Question 13**

Not yet answered  
Marked out of  
1.00

Flag question

Consider the function  $f: R \rightarrow R$   $f(x) = x^2 + 6$

a) Is this a one-to-one function?

- Yes
- No

b) Is this an on to function?

- Yes
- No

b) Does the inverse exist?

- Yes
- No

b) What is the inverse function?

- $f^{-1}(x) = (x-6)^{1/2}$
- $f^{-1}(x) = 1/(x-6)^{1/2}$
- $f^{-1}(x) = (x-6)^2$
- Does not exist

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 10$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{0}} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$

$$P = \begin{bmatrix} \quad \\ \quad \end{bmatrix} \quad Q = \begin{bmatrix} \quad \\ \quad \end{bmatrix}$$

$$C = \begin{bmatrix} \quad \\ \quad \end{bmatrix}$$

$$d = \begin{bmatrix} \quad \end{bmatrix}$$

b) Find the cofactor matrix(C) of A.

$$C = \begin{bmatrix} a_1 & a_2 \\ a_3 & a_4 \end{bmatrix}$$

$$a_1 = \begin{bmatrix} \quad \end{bmatrix} \quad a_2 = \begin{bmatrix} \quad \end{bmatrix}$$

$$a_3 = \begin{bmatrix} \quad \end{bmatrix} \quad a_4 = \begin{bmatrix} \quad \end{bmatrix}$$

c) Find the determinant of A. :

d) Find the adjoint of A.

$$\text{adj } A = \begin{bmatrix} p & q \\ r & s \end{bmatrix}$$

$$p = \begin{bmatrix} \quad \end{bmatrix} \quad q = \begin{bmatrix} \quad \end{bmatrix}$$

$$r = \begin{bmatrix} \quad \end{bmatrix} \quad s = \begin{bmatrix} \quad \end{bmatrix}$$

## ■ Quiz navigation

Finish attempt ...

Time left 0:44:13

1 ▲	2	3	4	5 ▲	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					



During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 10$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

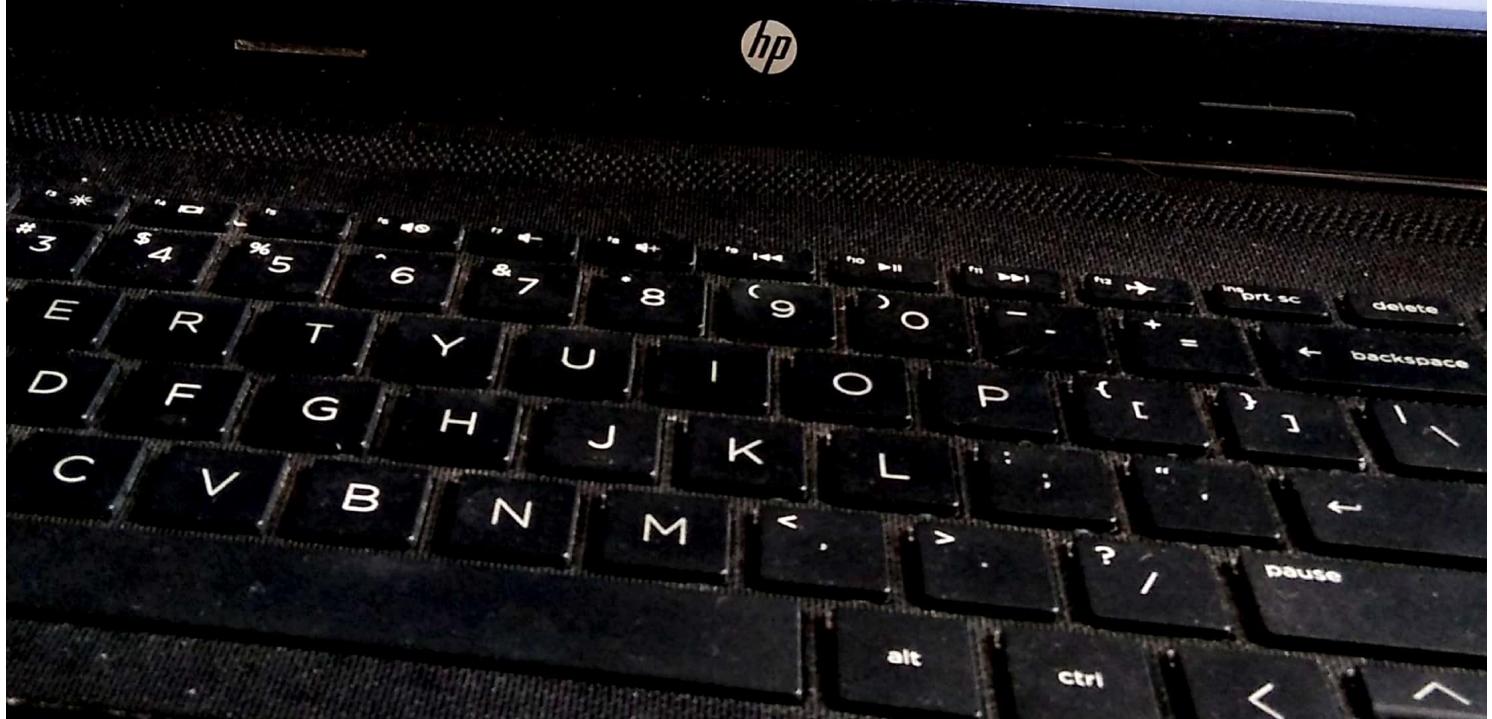
- a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{I} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$



≡ Quiz navigation

Finish attempt ...

Time left 0:44:58

1	2	3
▲		
8	9	10
15	16	17
22	23	24
29	30	

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = \boxed{10}$$

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{I} \quad q = : \boxed{\phantom{0}}$$

$$r = : \boxed{\phantom{0}} \quad s = : \boxed{\phantom{0}}$$

During recent National Hockey League and National Basketball Association seasons, two hockey tickets and one basketball ticket purchased at their average prices would have cost Rs110. One hockey ticket and two basketball tickets would have cost Rs100.

Assume that the cost of a hockey ticket is X.

$$| \quad I * X + \boxed{\phantom{00}} * Y = 10$$

$$\boxed{\phantom{00}} * X + \boxed{\phantom{00}} * Y = 100$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \boxed{\phantom{00}} \quad q = : \boxed{\phantom{00}}$$

$$r = : \boxed{\phantom{00}} \quad s = : \boxed{\phantom{00}}$$

≡ Quiz

Finish atten

Time left 0:3

1	2
▲	▼
8	9
▼	▲
15	16
22	23
29	30

a) Obtain the truth table for the following expression.

$$X = (\overline{A \cdot \overline{B} \cdot C} + B)(\overline{B})(\overline{A + \overline{C}})$$

A	B	C	$\overline{B}$	$\overline{A \cdot \overline{B} \cdot C}$	$\overline{A \cdot \overline{B} \cdot C} + B$	$\overline{C}$	$A + \overline{C}$	$\overline{A + \overline{C}}$	X
0	0	0	1	1	I				0
0	0	1	1	0					0
0	1	0	0	1					0
0	1	1	0	1					0

Marked out of 1.00

Flag question

Annotated  
Next-state  
Table

	1	0
a		
b		
c		
d		
e		
f		

Finish attempt ...  
Time left 0:35:16

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Moodle

NetExam  
Sri Lanka Institute of Information Technology

Question 22  
Not yet answered  
Marked out of 1.00  
Flag question

If  $|A| = 43$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 4 & -3 & x \\ 2 & 2 & 5 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾

$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾

$C_{23}$  Choose... ▾



# NetExam

Sri Lanka Institute of Information Technology

12  
answered  
out of  
g question

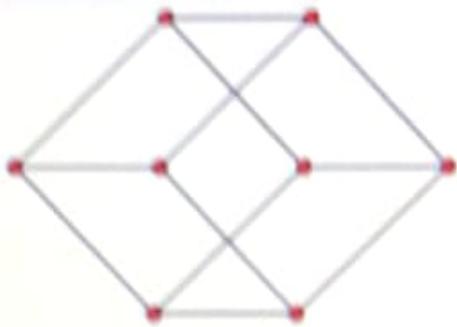
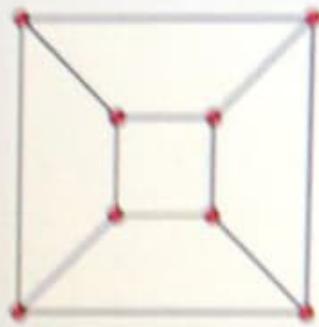
Find the determinant of A.

$$A = \begin{bmatrix} 5 & 4 & 7 \\ 3 & -6 & 5 \\ 4 & 2 & -3 \end{bmatrix}$$

Answer:

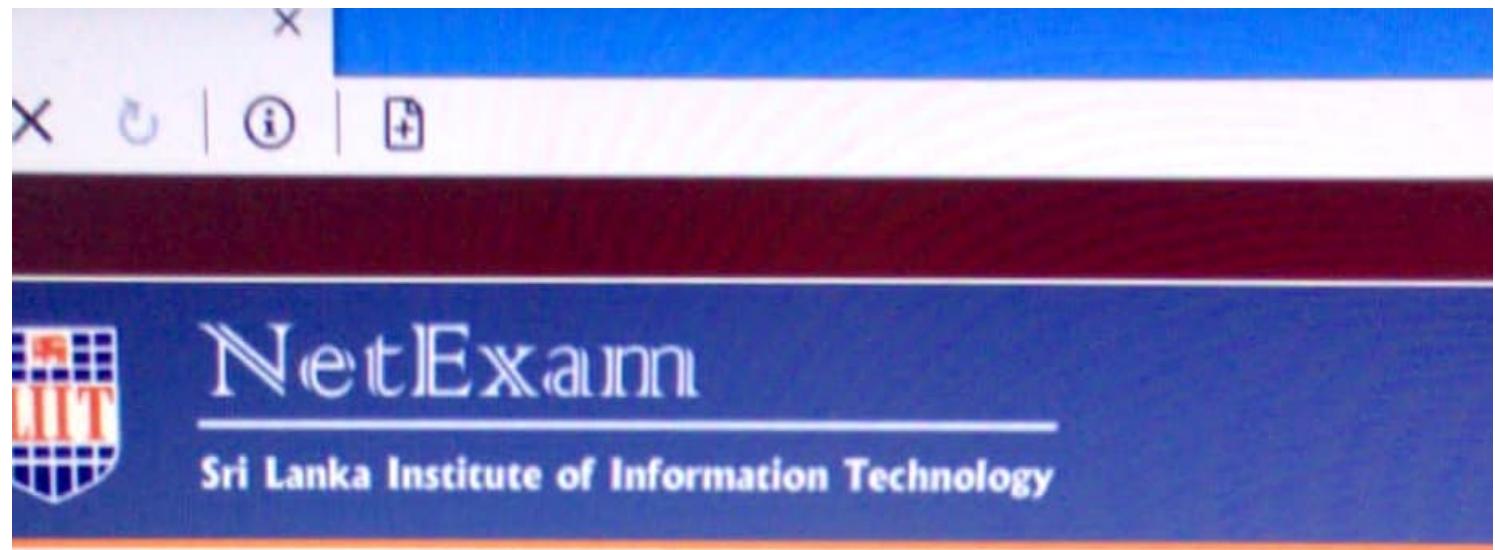


What is the correct statement about the following 2 graphs.



Select one:

- Two graphs are isomorphic
- Two graphs are not isomorphic
- The two graphs have different degree sequences
- None of the above



**NetExam**  
Sri Lanka Institute of Information Technology

Find the derivative of the following function.  
(If your answer is not an integer, then write it as a quotient)

$$f(t) = \frac{4}{t} - \frac{1}{6t^3} + \frac{8}{t^5}$$

$$f'(t) = \boxed{\phantom{0}} t^{\boxed{\phantom{0}}} + \boxed{\phantom{0}} t^{-4} - 40 t^{\boxed{\phantom{0}}}$$



If  $A = \begin{vmatrix} a & b & c \\ x & y & z \\ l & m & n \end{vmatrix}$  is a skew-symmetric matrix then which of the following is equal to  $x+y+z$ ?

Select one:

- a+b+c
- l+m+n
- b-m
- c-l-n
- None of the above

Evaluate  $\int_1^5 x^2 + |5x - 3| dx$

=

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

elementary row operations are applied in the given order.

$$\begin{bmatrix} 1 & 2 & -1 & 1 & 0 & 0 \\ 2 & 1 & 1 & 0 & 1 & 0 \\ 3 & -1 & 2 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} a & b & c & j & k & l \\ d & e & f & m & n & o \\ g & h & i & p & q & r \end{bmatrix}$$

$$1. r'_2 = r_2 - 2r_1$$

$$2. r'_3 = r_3 - 3r_1$$

$$3. r'_2 = r_2 \times \frac{-1}{3}$$

$$4. r'_3 = r_3 + 7r_2$$

$$5. r'_3 = r_3 \times \frac{-1}{2}$$

$$a = \boxed{\phantom{00}} \quad b = \boxed{\phantom{00}} \quad c = \boxed{\phantom{00}}$$

$$d = \boxed{\phantom{00}} \quad e = \boxed{\phantom{00}} \quad f = \boxed{\phantom{00}}$$

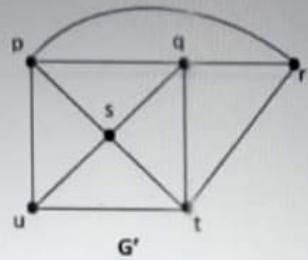
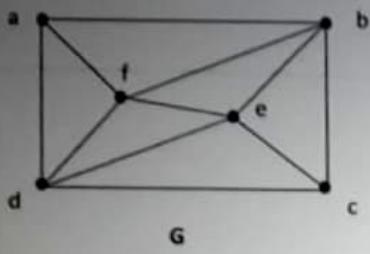
$$g = \boxed{\phantom{00}} \quad h = \boxed{\phantom{00}} \quad i = \boxed{\phantom{00}}$$

$$j = \boxed{\phantom{00}} \quad k = \boxed{\phantom{00}} \quad l = \boxed{\phantom{00}}$$

$$m = \boxed{\phantom{00}} \quad n = \boxed{\phantom{00}} \quad o = \boxed{\phantom{00}}$$

$$p = \boxed{\phantom{00}} \quad q = \boxed{\phantom{00}} \quad r = \boxed{\phantom{00}}$$

Consider the following 2 graphs.



G

Number of Components

1

G'

Number of Vertices

6

1

Number of Edges

11

6

Degree Sequence

4, 4, 4, 4, 3, 3

11

4, 4, 4, 4, 3, 3

Are they isomorphic?

G and H are

isomorphic

Not Isomorphic

Evaluate  $\int_1^5 x^2 + |5x - 3|. dx$

=  $268\frac{1}{3}$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

Find the derivative of the following function  
(If your answer is not an integer, then write it as a decimal)

$$h(x) = \frac{4x^3 - 7x + 8}{x}$$

$$h'(x) = \boxed{\phantom{0}} + x - \boxed{\phantom{0}} x^{\boxed{\phantom{0}}}$$

If  $|A| = 43$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 4 & -3 & x \\ 2 & 2 & 5 \end{bmatrix}$$

$C_{11}$

$C_{12}$

$C_{13}$

$C_{21}$

$C_{22}$

$C_{23}$



# NetExam

Sri Lanka Institute of Information Technology

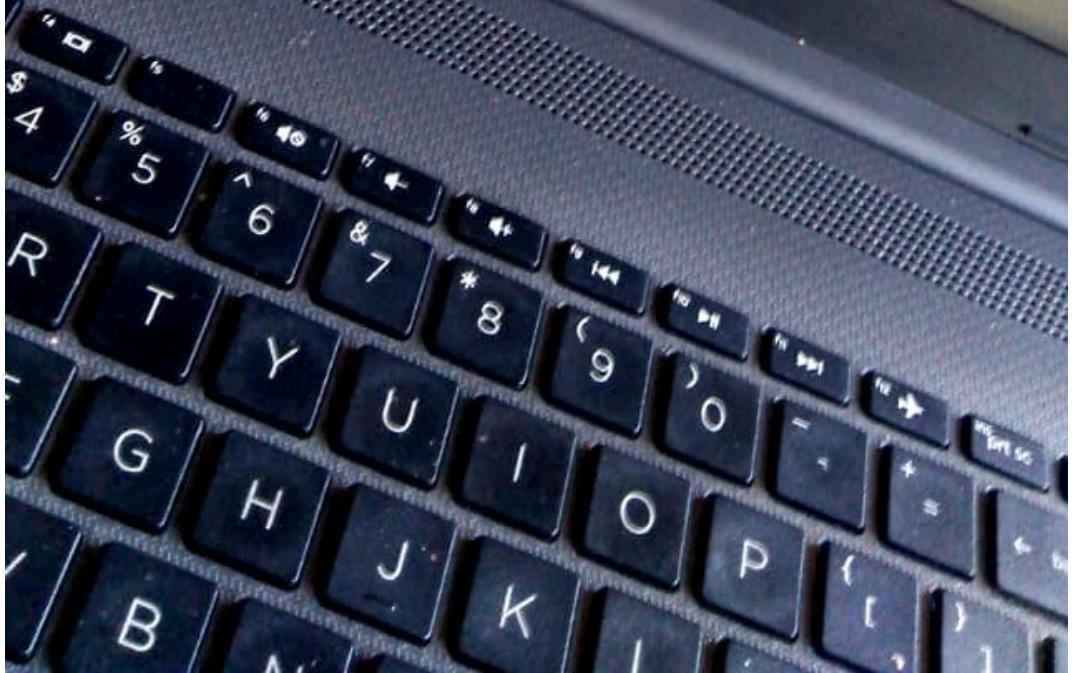
Question 20

Not yet answered  
Marked out of  
1.00

Flag question

Find the following definite integral.  
(If your answer is not an integer, then write it as a quotient)

$$\int_1^4 \frac{8}{\sqrt{t}} - 12\sqrt{t^3} dt = \boxed{I}$$



ered  
of  
stion

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

Find  $B = A^2 - 3A + 2I$

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

a = :

b = :

c = :

d = :

To buy a computer system, a customer can choose one of 8 monitors, one of 8 keyboards, one of 9 computers and one of 6 printers.

a) Determine the number of possible systems that a customer can choose from.

Answer = : 3456

b) Another customer wants to buy a 2 monitors or 2 keyboards or 3 computers.

Find the possible ways of choosing monitor, keyboard and computer.

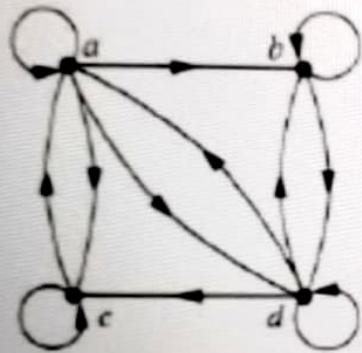
Answer = : 14qI

Find the determinant of A.

$$A = \begin{bmatrix} 6 & -5 & 8 \\ 7 & 5 & -3 \\ 2 & 8 & 7 \end{bmatrix}$$

Answer: 997<sup>1</sup>

Consider the following Directed Graph.



Number of Edges = :

Total Indegree = :

Total Outdegree = :

tion 12

et answered

ed out of

ig question

Consider the function  $f: \mathbb{R} \rightarrow \mathbb{R}$   $f(x) = x$ .

a) Is this a one-to-one function?

Yes

No



b) Is this an on to function?

Yes

No

b) Does the inverse exist?

Yes

No

b) What is the inverse function?

$f^{-1}(x) = x$

$f^{-1}(x) = 1/x$

$f^{-1}(x) = x-1$



$C_{21}$  4

$C_{22}$  -9

$C_{23}$  2

$C_{31}$  21

$C_{32}$  28

$C_{33}$  11



# NetExam

Sri Lanka Institute of Information Technology

Question 12

Not yet answered

Marked out of

1.00

Flag question

Consider the function  $f: \mathbb{R} \rightarrow \mathbb{R}$   $f(x) = x$ .

a) Is this a one-to-one function?

Yes

No

b) Is this an onto function?

Yes

No

b) Does the inverse exist?

Yes

No

b) What is the inverse function?

$f^{-1}(x) = x$

$f^{-1}(x) = 1/x$

$f^{-1}(x) = -x$

C

Finish

Time left

1

8

15

22

29

3



If  $|A| = 71$  then find the cofactor matrix of

$$A = \begin{bmatrix} 1 & 7 & x \\ 5 & 4 & -2 \\ 2 & 3 & -3 \end{bmatrix}$$

$C_{11}$  Choose... ▾

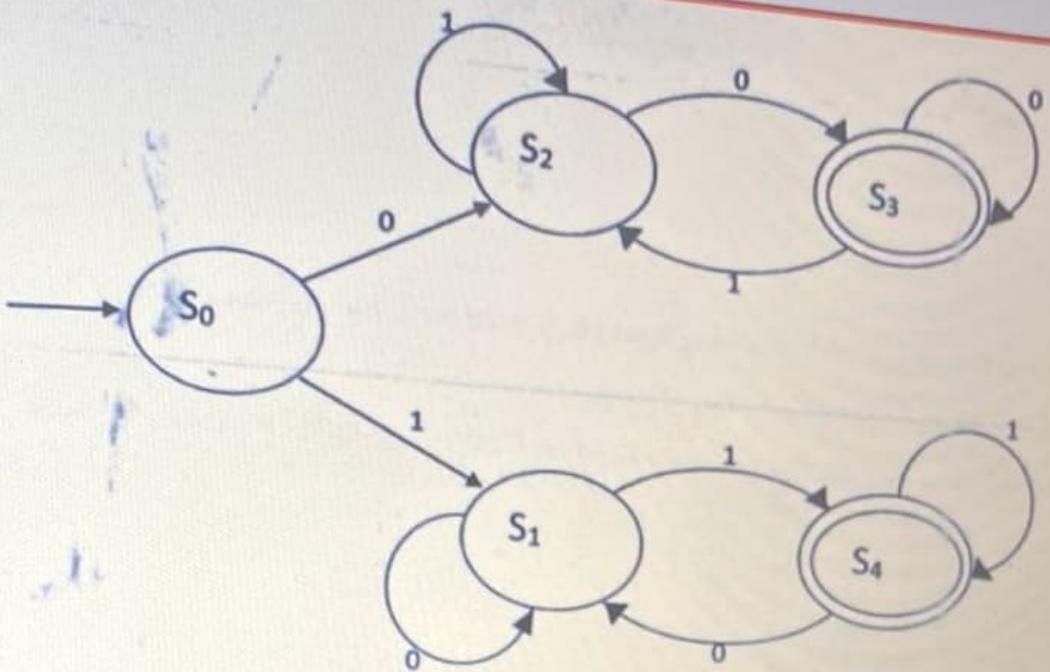
$C_{12}$  Choose... ▾

$C_{13}$  Choose... ▾

$C_{21}$  Choose... ▾

$C_{22}$  Choose... ▾

$C_{23}$  Choose... ▾



Annotated  
Next-state  
Table

	1	0
s0		
s1		
s2		
s3		
s4		

If  $|A| = 43$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 4 & -3 & x \\ 2 & 2 & 5 \end{bmatrix}$$

$$\begin{aligned} |A| &= 1 \cdot (-15 - 2x) \\ &\quad - 2 \cdot (20 - 2x) + 7(8 + 1) \end{aligned}$$

$$43 = -15 - 2x - 40 + 4x + 56 + 4$$

$$43 = 43 + 2x$$

$$2x = 0$$

$$x = 0$$

$$C_{11} = (-1)^1 \times 15 = -15$$

$$C_{12} = (-1)^2 \times 20 = -20$$

$$C_{13} = (-1)^3 \times 14 = 14$$

$$C_{21} = (-1)^4 \times -4 = 4$$

$$C_{22} = (-1)^5 \times -9 = -9$$

$$C_{23} = (-1)^6 \times -2 = 2$$

$C_{11}$  Choose...

Choose...

20

-20

-11

15

21

2

3

14

13

28

4

9

-15

11

4

-9

-12

-21

$C_{22}$  Choose...

Choose...

step write down the number of the correct boolean identities.

Consider the following Boolean identities.

1. Double Complement Law
2. Idempotent Law
3. Identity Law
4. Universal Bound Law
5. Commutative Law
6. Associative Law
7. Distributive Law
8. De Morgan's Law
9. Absorption Law
10. Inverse Law

$$X = (\overline{A} \cdot \overline{B} \cdot C + B)(B)(\overline{A} + \overline{C})$$

$$X = (\overline{A} + \overline{B} + \overline{C} + B)(B)(\overline{A} \cdot \overline{C})$$

$$X = (\overline{A} + B + \overline{C} + B)(B)(\overline{A} \cdot C)$$

$$X = (\overline{A} + B + \overline{C})(B)(\overline{A} \cdot C)$$

$$X = (\overline{A}B + BB + B\overline{C})(\overline{A} \cdot C)$$

$$X = (\overline{A}B + B + B\overline{C})(\overline{A}C)$$

$$X = (\overline{A}ABC + \overline{A}BC + \overline{A}BCC\overline{C})$$

$$X = (\overline{A}BC + \overline{A}BC + 0)$$

$$X = (\overline{A}BC + \overline{A}BC)$$

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

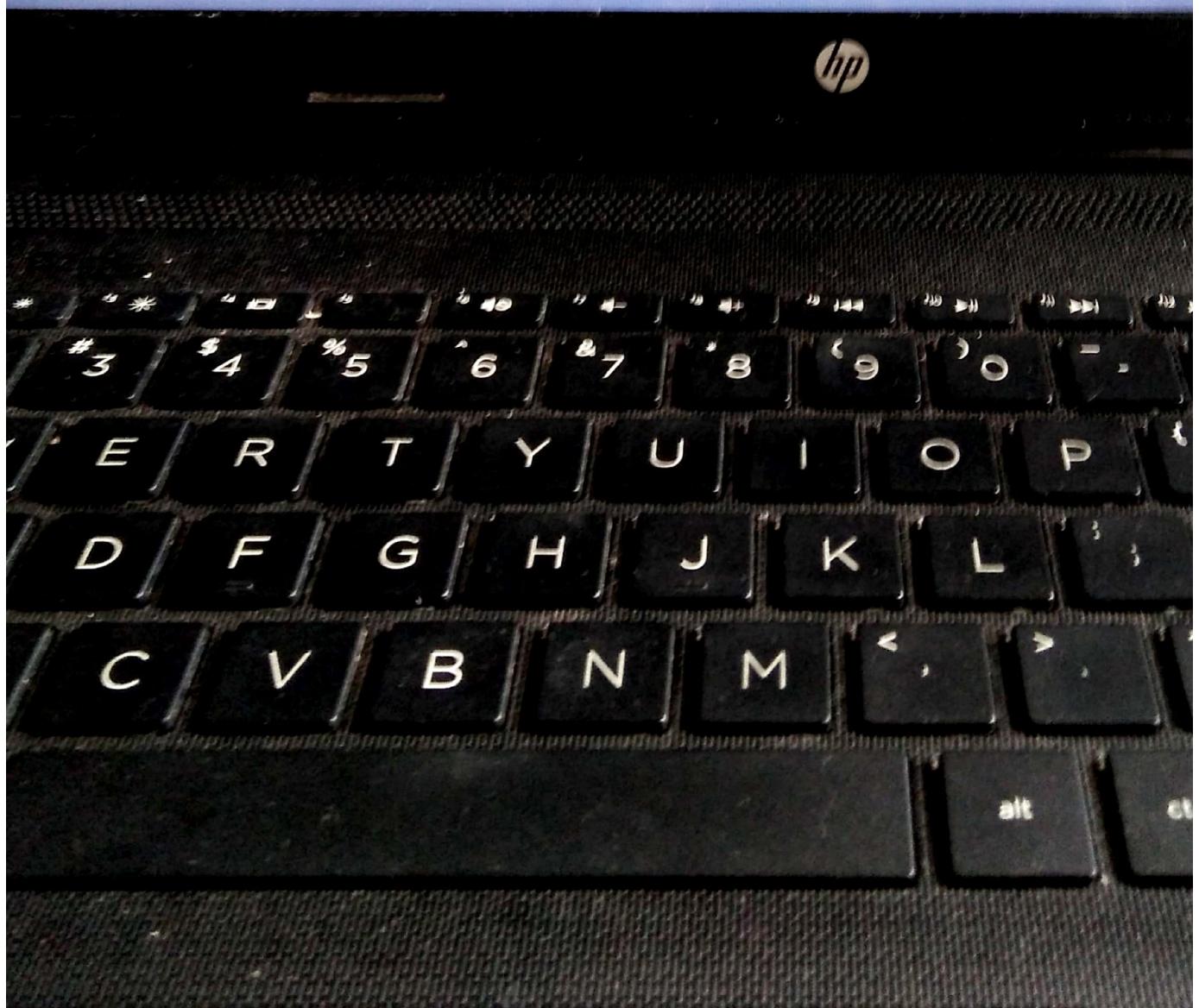
$$\int_1^6 12x^3 - 9x^2 + 2 \, dx = \boxed{\quad}$$

[Next page](#)

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_1^6 12x^3 - 9x^2 + 2 \, dx = \boxed{\quad}$$

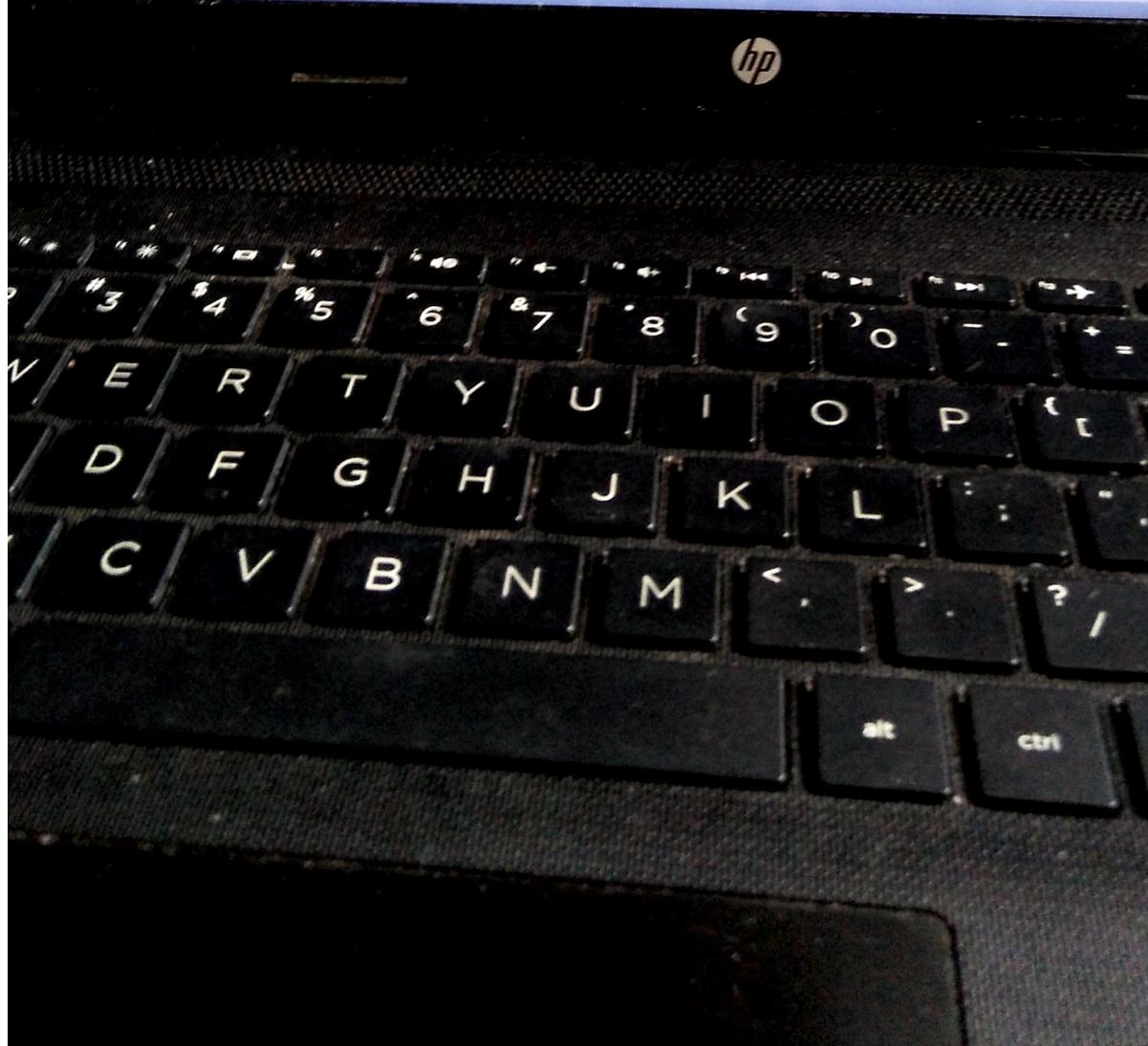


Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_1^6 12x^3 - 9x^2 + 2 \, dx = \boxed{\quad}$$

[Next page](#)



• 13

answered  
1 out of

question

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_1^6 12x^3 - 9x^2 + 2 \, dx = \boxed{\quad}$$

Next page

**N Refers to all the positive integers. (Called as Natural Numbers)**

$$f: N \rightarrow N \quad f(n) = n^3 + 3$$

Is  $f$  a One to one function?

Choose... ▾

Is  $f$  an onto function?

Choose... ▾

Does  $f$  has an inverse function?

Choose... ▾



# NetExam

Sri Lanka Institute of Information Technology

Question 12

Not yet answered  
Marked out of  
10

Flag question

$$f(x) = \frac{x^2 + 7}{3x - 1}.$$

Find  $f'(-1)$ .

Hint : Differentiate the function and Substitute -1.

Answer:

Next p

≡ Quiz 1

Finish attempt

Time left 0:2

1	2	
8	9	
15	16	1
22	23	24
29	30	

Next page

To buy a computer system, a customer can choose one of 5 monitors, one of 7 keyboards, one of 4 computers and one of 6 printers.

a) Determine the number of possible systems that a customer can choose from.

Answer = :

b) Another customer wants to buy a monitor, keyboard and computer only.

Find the possible ways of choosing monitor, keyboard and computer.

Answer = :

Consider the following linear system of equations.

$$\begin{aligned}x + 2y - z &= 2 \\2x + y + z &= 7 \\3x - y + 2z &= 7\end{aligned}$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Write down the above three equations in matrix form  $Ax = b$ .

$$A = \begin{bmatrix} \square & \square & \square \\ \square & \square & \square \\ \square & \square & \square \end{bmatrix}$$

$$b = \begin{bmatrix} \square \\ \square \\ \square \end{bmatrix}$$



b) Consider the following. Find the values of the resulting matrix, when the following elementary row operations are applied in the given order.

$$\begin{bmatrix} 1 & 2 & -1 & 1 & 0 & 0 \\ 2 & 1 & 1 & 0 & 1 & 0 \\ 3 & -1 & 2 & 0 & 0 & 1 \end{bmatrix} \rightarrow \begin{bmatrix} a & b & c & j & k & l \\ d & e & f & m & n & o \\ g & h & i & p & q & r \end{bmatrix}$$

$$1. r'_2 = r_2 - 2r_1$$

A theater has a seating capacity of 1000 and charges \$4 for children and \$5 for adults. At a certain screening with full attendance the receipts totaled \$4300. Write 2 equations to find the attended number of children and adults.

Assume that number of children is denoted by X.

$$4 * X + 5 * Y = 1000$$

$$\boxed{ } * X + \boxed{ } * Y = \boxed{ } 4300$$

a) Write the above 2 equations in matrix form  $Ax = b$ . (According to the given order).

$$Ax = b$$

$$A = \begin{bmatrix} p & q \\ r & s \end{bmatrix} \quad x = \begin{bmatrix} t \\ u \end{bmatrix} \quad b = \begin{bmatrix} c \\ d \end{bmatrix}$$

$$p = : \quad q = : \quad$$

$$r = : \quad s = :$$

$$c = :$$

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_2^1 \frac{2y^3 - 6y^2}{y^2} dy = \boxed{\phantom{00}}$$

Next





# NetExam

Sri Lanka Institute of Information Technology

19

answered  
out of  
question

Consider the following function.

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

1. Find  $f'(-3)$  :
2. Find the definite integral of  $f(x)$  from -3 to 3 :

1	2
▲	▼
8	9
▲	▼
15	16
22	23
29	30

To buy a computer system, a customer can choose one of 5 monitors, one of 7 keyboards, one of 4 computers and one of 6 printers.

a) Determine the number of possible systems that a customer can choose from.

Answer = :

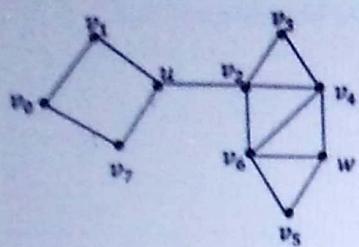
b) Another customer wants to buy a monitor, keyboard and computer only.

Find the possible ways of choosing monitor, keyboard and computer.

Answer = :

[Next page](#)

a) Determine whether the following graph has Euler path, Euler circuit, Hamilton path or Hamilton circuit.



Euler Path =

- Yes
- No

Euler Circuit =

- Yes
- No

Hamilton Path =

- Yes
- No

Find the following definite integral.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

$$\int_{-2}^1 5z^2 - 7z + 3 \, dz = 69/2$$

red  
ion

Consider the following linear system of equations.

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

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

$$x + 2y + z = 2$$

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

(Simplify your answer as much as possible. eg: Do not keep 2/6, write 1/3 (No common factors should be there in numerator and denominator))

a) Represent the above system of linear equations in matrix form  $Ax = b$ .

$$A = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}, x = \begin{bmatrix} x \\ y \\ z \end{bmatrix}, b = \begin{bmatrix} p \\ q \\ r \end{bmatrix}$$

$$a = : \boxed{1} \quad b = : \boxed{2} \quad c = : \boxed{-1}$$

$$d = : \boxed{3} \quad e = : \boxed{-2} \quad f = : \boxed{3}$$

$$g = : \boxed{2} \quad h = : \boxed{-3} \quad i = : \boxed{2}$$

### Quiz navigation

Finish attempt ...

Time left 0:16:31

1	2	3	4	5
6	7	8	9	10
11	12	13	14	15
16	17	18	19	20
21	22	23	24	25
26	27	28	29	30

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

Find  $B = A^2 - 3A + 2I$

$$B = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$

a = :

b = :

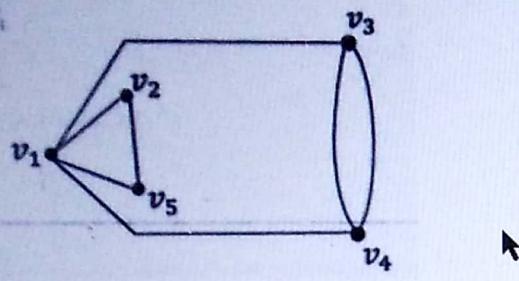
c = :

d = :

Yes

No

b) Write down the adjacency matrix for the following graph.



$v_1 \quad v_2 \quad v_3 \quad v_4 \quad v_5$

$$\begin{matrix} v_1 & \begin{bmatrix} a & b & c & d & e \\ f & g & h & i & j \\ k & l & m & n & o \\ p & q & r & s & t \\ u & v & w & x & y \end{bmatrix} \\ v_2 & \\ v_3 & \\ v_4 & \\ v_5 & \end{matrix}$$

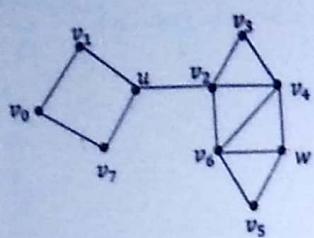
$a = : \boxed{\phantom{00}}$   $b = : \boxed{\phantom{00}}$   $c = : \boxed{\phantom{00}}$   $d = : \boxed{\phantom{00}}$   $e = : \boxed{\phantom{00}}$

$f = : \boxed{\phantom{00}}$   $g = : \boxed{\phantom{00}}$   $h = : \boxed{\phantom{00}}$   $i = : \boxed{\phantom{00}}$   $j = : \boxed{\phantom{00}}$

$k = : \boxed{\phantom{00}}$   $l = : \boxed{\phantom{00}}$   $m = : \boxed{\phantom{00}}$   $n = : \boxed{\phantom{00}}$   $o = : \boxed{\phantom{00}}$

$p = : \boxed{\phantom{00}}$   $q = : \boxed{\phantom{00}}$   $r = : \boxed{\phantom{00}}$   $s = : \boxed{\phantom{00}}$   $t = : \boxed{\phantom{00}}$

a) Determine whether the following graph has Euler path, Euler circuit, Hamilton path or Hamilton circuit.



Euler Path =

- Yes
- No

Euler Circuit =

- Yes
- No

Hamilton Path =

- Yes
- No

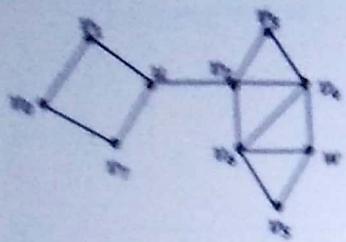
☰ Quiz

Finish att

Time left

1	2
8	9
15	16
22	23
29	30

a) Determine whether the following graph has Euler path, Euler circuit, Hamilton path or Hamilton circuit.



Euler Path =

- Yes
- No

Euler Circuit =

- Yes
- No

Hamilton Path =

- Yes
- No



Fin

Tim

1

8

15

22

29

a) Convert  $5236_{10}$  to following number systems.

Equivalent Binary Number (x) =

Equivalent Octal Number (y) =

Equivalent Hexadecimal Number (z) =

b) Find:

(Write your answer for 2's complement with 12 digits)

2's Complement of x ( $x'$ ) =

8's Complement of y =

16's Complement of z =

c) Fill in the blanks.



i)  $11011001 + 10101110 =$   (Write your answer with 9 digits)

ii)  $11011001 - 10101110 =$   (Write your answer with 6 digits)

iii)  $11011101 \times 110 =$   (Write your answer with 11 digits)

iv)  $11011101 \div 110$

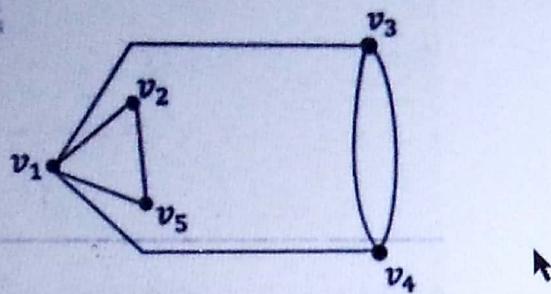
Quotient =  (Write your answer with 6 digits)

Remainder =  (Write your answer with 2 digits)

Yes

• No

b) Write down the adjacency matrix for the following graph.



$$v_1 \ v_2 \ v_3 \ v_4 \ v_5$$

$$\begin{array}{l} v_1 \\ v_2 \\ v_3 \\ v_4 \\ v_5 \end{array} \left[ \begin{array}{ccccc} a & b & c & d & e \\ f & g & h & i & j \\ k & l & m & n & o \\ p & q & r & s & t \\ u & v & w & x & y \end{array} \right]$$

a = :  b = :  c = :  d = :  e = :

f = :  g = :  h = :  i = :  j = :

k = :  l = :  m = :  n = :  o = :

p = :      q = :      r = :      s = :      t = :

Find  $f'(-2)$  of the function  $f(x) = |x|$ .

Answer =

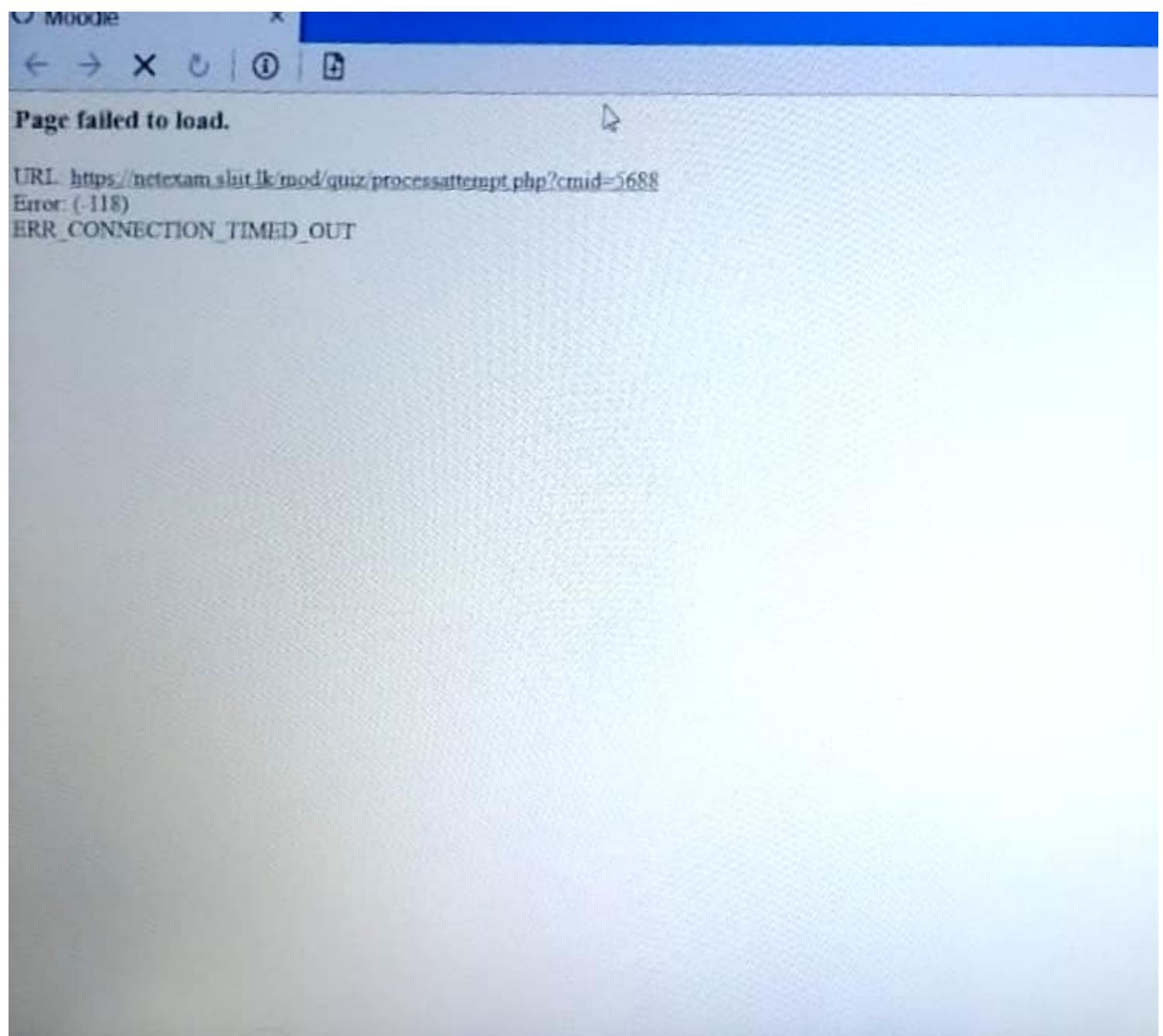


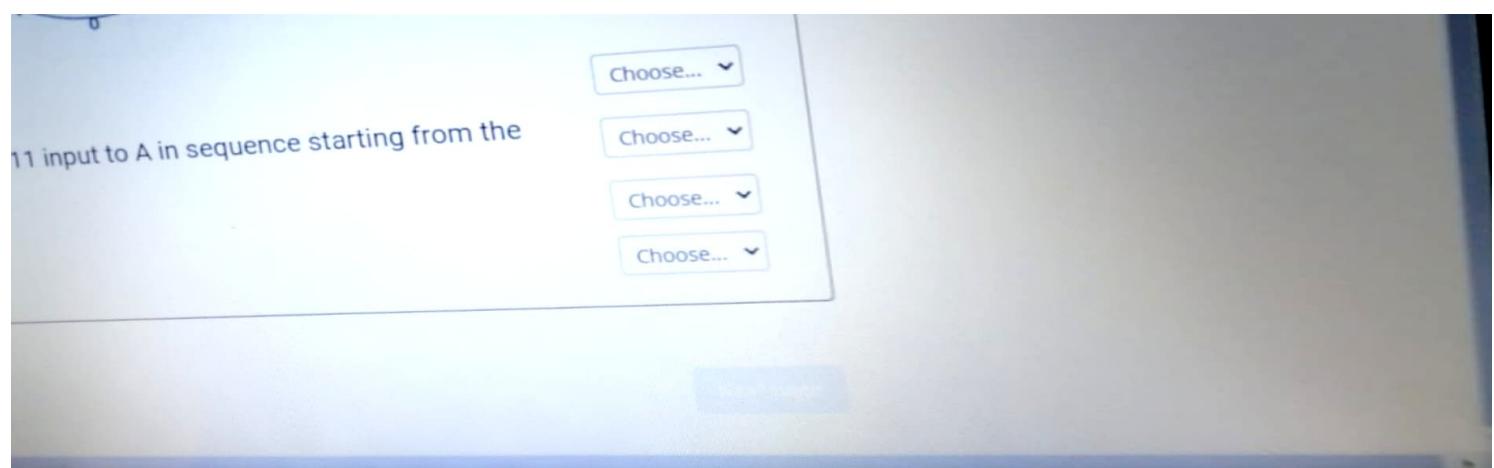
Evaluate  $\int_1^5 x^2 + |5x - 3| \cdot dx$

=



(If your answer is not an integer, then write it as a quotient  
(Simplify your answer as much as possible. eg: Do not keep  
there in numerator and denominator))





NetExam

Sri Lanka Institute of Information Technology

Find  $f'(-2)$  of the function  $f(x) = |x|$ .

Answer =



the following finite state Machine A.

```
graph LR; start(( )) --> a((a)); a -- 1 --> a; a -- 0 --> b((b)); b -- 0 --> b; b -- 1 --> c((c)); c -- 1 --> d((d)); d -- 0 --> e((e)); e -- 1 --> f(((f))); f -- 0 --> f;
```

What is the initial State?

What state does A go if 1010111 input to A in sequence starting from the initial state?

a

b

c

d

e

f

Finish attempt

## ☰ Quiz navigation

Finish attempt ...

Time left 0:08:09

1 ▲	2	3	4	5 ▲	6	7
8	9 ▲	10 ▲	11	12	13	14
15 ▲	16 ▲	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Next page

Find  $f'(-2)$  of the function  $f(x) = |x|$ .

Answer =



Next page

**Question 19**

Not yet answered

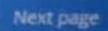
Marked out of  
1.00 Flag question

Simplify the following boolean expression.

$$(\overline{A + B})(\overline{C + B + \bar{C}})(B + (\bar{C} + B + C)) + A + B + C$$

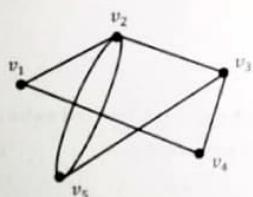
Select one:

- B
- A+B+C
- 1
- A(B+C)
- None of the above

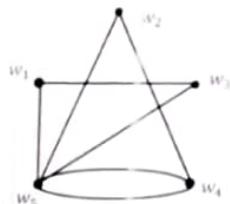
 Next page

**Question 20**Not yet answered  
Marked out of 1.00 Flag question

Consider the following 2 graphs.



G



H

G

Number of Components 

H

Number of Vertices Number of Edges Degree Sequence  ,  ,  ,  ,        ,  ,  ,  , 

Are they isomorphic?

G and H are

- isomorphic
- Not Isomorphic

From row 2,

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y + \boxed{\phantom{0}} * Z = \boxed{\phantom{0}}$$

From row 1,

$$\boxed{\phantom{0}} * X + \boxed{\phantom{0}} * Y + \boxed{\phantom{0}} * Z = \boxed{\phantom{0}}$$

3. Hence find the solution of the above linear system of equations.

$$X = : \boxed{\phantom{0}}$$

$$Y = : \boxed{\phantom{0}}$$

$$Z = : \boxed{\phantom{0}}$$

[Next page](#)

c = :  c1 = :  c2 = :  c3 = :   
d = :  d1 = :  d2 = :  d3 = :   
e = :  e1 = :  e2 = :  e3 = :   
f = :  f1 = :  f2 = :  f3 = :   
g = :  g1 = :  g2 = :  g3 = :   
h = :  h1 = :  h2 = :  h3 = :   
i = :  i1 = :  i2 = :  i3 = :   
p = :  p1 = :  p2 = :  p3 = :   
q = :  q1 = :  q2 = :  q3 = :   
r = :  r1 = :  r2 = :  r3 = :

2. To find the solution, of the above linear system, obtain the three equations from the echelon form of the augmented matrix.

From row 3,

$$\boxed{\phantom{0}} *X + \boxed{\phantom{0}} *Y + \boxed{\phantom{0}} *Z = \boxed{\phantom{0}}$$

From row 2,

$$\boxed{\phantom{0}} *X + \boxed{\phantom{0}} *Y + \boxed{\phantom{0}} *Z = \boxed{\phantom{0}}$$

Consider the following linear system of equations.

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

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

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

1. Write down the augmented matrix for the above system of linear equations and reduce that to echelon form.

$$\begin{bmatrix} a & b & c & p \\ d & e & f & q \\ g & h & i & r \end{bmatrix} \rightarrow \begin{bmatrix} a_1 & b_1 & c_1 & p_1 \\ d_1 & e_1 & f_1 & q_1 \\ g_1 & h_1 & i_1 & r_1 \end{bmatrix} \rightarrow \begin{bmatrix} a_2 & b_2 & c_2 & p_2 \\ d_2 & e_2 & f_2 & q_2 \\ g_2 & h_2 & i_2 & r_2 \end{bmatrix} \rightarrow \begin{bmatrix} a_3 & b_3 & c_3 & p_3 \\ d_3 & e_3 & f_3 & q_3 \\ g_3 & h_3 & i_3 & r_3 \end{bmatrix}$$

$$r'_2 = r_2 - 2r_1$$

$$r'_3 = r_3 - 3r_1$$

$$r'_3 = r_3 - \frac{4}{3}r_2$$

$$a = : \boxed{\phantom{00}} \quad a_1 = : \boxed{\phantom{00}} \quad a_2 = : \boxed{\phantom{00}} \quad a_3 = : \boxed{\phantom{00}}$$

$$b = : \boxed{\phantom{00}} \quad b_1 = : \boxed{\phantom{00}} \quad b_2 = : \boxed{\phantom{00}} \quad b_3 = : \boxed{\phantom{00}}$$

$$c = : \boxed{\phantom{00}} \quad c_1 = : \boxed{\phantom{00}} \quad c_2 = : \boxed{\phantom{00}} \quad c_3 = : \boxed{\phantom{00}}$$

$$d = : \boxed{\phantom{00}} \quad d_1 = : \boxed{\phantom{00}} \quad d_2 = : \boxed{\phantom{00}} \quad d_3 = : \boxed{\phantom{00}}$$

$$e = : \boxed{\phantom{00}} \quad e_1 = : \boxed{\phantom{00}} \quad e_2 = : \boxed{\phantom{00}} \quad e_3 = : \boxed{\phantom{00}}$$

≡ Q

Finish

Time

1

8

15

22

29

工

1

5

1

6

100

5

2

2, 4, 3, 2, 3 | 2, 2, 3, 5, 2

## Not isomorphic

**Question 28**

Not yet answered

Marked out of  
1.00

 Flag question

If  $A = \begin{vmatrix} a & b & c \\ x & y & z \\ l & m & n \end{vmatrix}$  is a skew-symmetric matrix then which of the following is equal to  $x+y+z$ ?

Select one:

- a+b+c
- l+m+n
- b-m
- c-l-n
- None of the above

 Next page

**Question 17**

Not yet answered

Marked out of  
1.00

Flag question

If  $|A| = 43$  then find the cofactor matrix of A.

$$A = \begin{bmatrix} 1 & 2 & 7 \\ 4 & -3 & x \\ 2 & 2 & 5 \end{bmatrix}$$

$C_{11}$  Choose... ▾

$C_{12}$  Choose... ▾

$C_{13}$  14 ▾

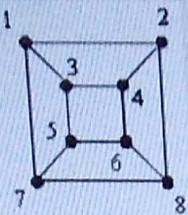
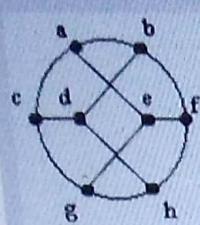
$C_{21}$  Choose... ▾

$C_{22}$  -9 ▾

2

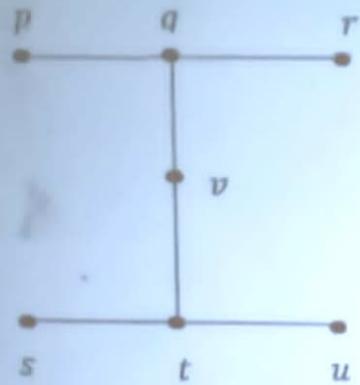
swered  
at of  
question

What is the correct statement about the following 2 graphs.

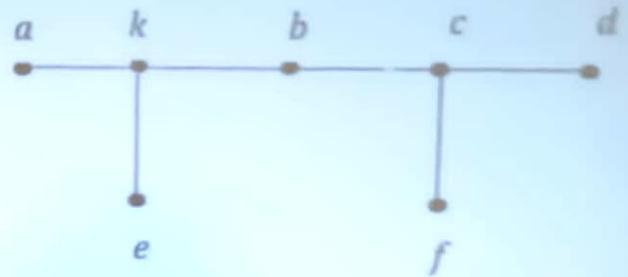


Select one:

- Two graphs are isomorphic
- Two graphs are not isomorphic
- The two graphs have different degree sequences
- None of the above



*G*



*H*

Number of Components

1

Number of Vertices

7

Number of Edges

6

Degree Sequence

1 , 3 , 1 , 1 , 3 , 1 , 2

1

7

6

1 , 2 , 3 , 1 , 1 , 1

Are they isomorphic?

*G* and *H* are

isomorphic

Not isomorphic

To buy a computer system, a customer can choose one of 8 monitors, one of 5 computers and one of 4 printers.

a) Determine the number of possible systems that a customer can choose from.

Answer = :

b) Another customer wants to buy a monitor, keyboard and computer only.

Find the possible ways of choosing monitor, keyboard and computer.

Answer = :



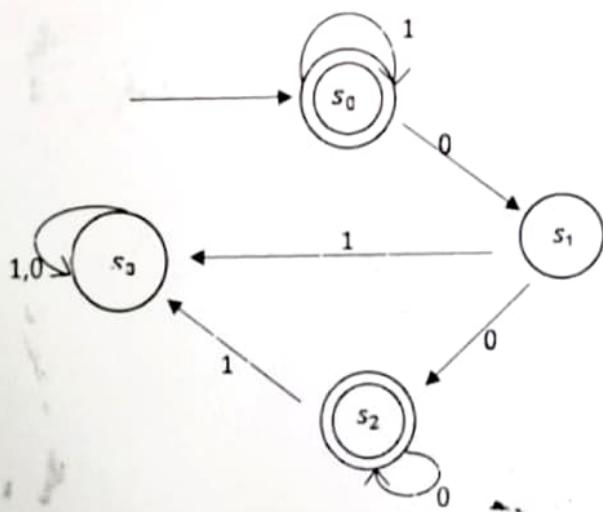
**Question 22**

Not yet answered

Marked out of  
1.00

Flag question

Consider the following finite state Machine A.



What is the initial State?

Choose... ▾

To what state does A go if 1000111 input to A in sequence starting from the initial state?

Choose... ▾

Find  $N(S2, 0)$

Choose... ▾

Find  $N(S3, 1)$

Choose... ▾

Consider the following function.

$$f(x) = x^4 - x^2 + 20$$

1. Find  $f'(-4)$  :

2. Find the definite integral of  $f(x)$  from -3 to 3 :

(Round your answer to one decimal place)

Find the derivative of the following function.

(If your answer is not an integer, then write it as a quotient (eg: 2/5))

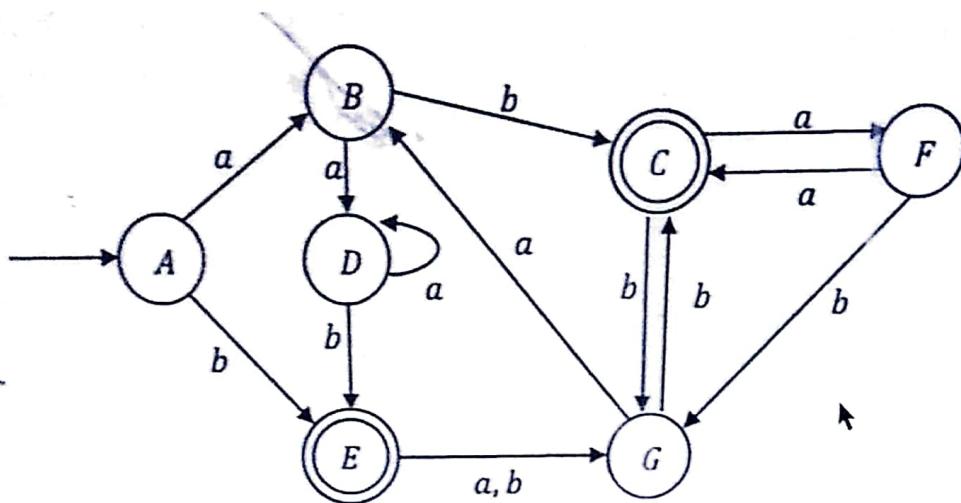
$$f(t) = \frac{4}{t} - \frac{1}{6t^3} + \frac{8}{t^5}$$

$$f'(t) = \boxed{\phantom{-}} t^{\boxed{\phantom{-}}} + \boxed{\phantom{-}} t^{-4} - 40 t^{\boxed{\phantom{-}}}$$

ବେଳେ

ଦୁଇ ମାତ୍ର

Obtain the Annotated Next-state Table for the following Finite State Machine.



Annotated  
Next-state  
Table

**Annotated  
Next-state  
Table**

	a	b
A		
B		
C		
D		
E		
F		
G		

[Next page](#)

$$\text{Let } A = \begin{bmatrix} 1 & -5 & 4 \\ 2 & 3 & 1 \\ 3 & 0 & 5 \end{bmatrix}$$

and  $B=3A$ ;  $C=B+2A-5I$ . Find matrix D such that  $D=2A+B-C$ .

Assume I is the identity matrix.

$$D = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

$$a = : \boxed{\phantom{00}}$$

$$b = : \boxed{\phantom{00}}$$

$$c = : \boxed{\phantom{00}}$$

$$d = : \boxed{\phantom{00}}$$

$$e = : \boxed{\phantom{00}}$$

Assume I is the identity matrix.

$$D = \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix}$$

$$a = : \boxed{\phantom{00}}$$

$$b = : \boxed{\phantom{00}}$$

$$c = : \boxed{\phantom{00}}$$

$$d = : \boxed{\phantom{00}}$$

$$e = : \boxed{\phantom{00}}$$

$$f = : \boxed{\phantom{00}}$$

$$g = : \boxed{\phantom{00}}$$

$$h = : \boxed{\phantom{00}}$$

$$i = : \boxed{\phantom{00}}$$