How to invert a matrix A?

Select one:

a. Augment an identity matrix to A and use row operations to convert Augmented matrix to an identity matrix the Augmented part becomes the inverse

b. Apply LU decomposition of A and U becomes the inverse

c. Augment an identity matrix to A and use row operations to convert A to an identity matrix the Augmented part becomes the inverse ✔

d. Augment an identity matrix to A and use row operations to convert the matrix A to an identity matrix then A becomes its inverse.

Consider a matrix whose columns are orthogonal. Which statements are true about the matrix?

Select one:

- a. It is a singular matrix ✖
- b. It is a rank deficient matrix
- c. The matrix is invertible
- d. The inner product of the columns are always zero

Your answer is incorrect.

The correct answer is: The matrix is invertible

Question 5

Not answered

ed out of 2.00

Find the vector parallel to the intersection of two planes 3x+6y-2z=15 and 2x+y+2z=5

Select one or more:

- a. 14i-10j-9k
- b. 14i+10j+9k
- c. 28i-20j-18k
- d. 14i+10j-9k

Your answer is incorrect.

The correct answers are: 28i-20j-18k, 14i-10j-9k

Question 6

Incorrect

Mark 0.00 out of 1.00

Flag question

The angle between the vectors u=i+2j-2k and v=6i-3j-2k is:

Select one:

a. $cos^{-1}(4/21)$

b. $cos^{-1}(-4/21)$ ✖

c. $cos(-4/21)$

d. $tan^{-1}(-4/21)$

Your answer is incorrect.

The correct answer is: $cos^{-1}(4/21)$

Question 7

Incorrect

Mark 0.00 out of 1.00

Flag question

...he dot product of two vectors U and V :

The dot product of two vectors U and V :

i) Commutative

ii) Distributive over addition

iii) Closed

iv) Gives the Euclidean norm of the vector if U=V

Select one:

- a. All options are true
- b. iii and iv are false
- c. i and iii are true
- d. Only i, ii and iv are true ✖

Your answer is incorrect.

The correct answer is: iii and iv are false

estion 8

ect

The projection of u=6i-3j-2k onto v=2i+2j-2k and the scalar component of u in the direction of v are ..... and ....., respectively.

Select one:

a. $5/6 * (2i + 2j - 2k), 5/(\sqrt{3})$ ✔

b. $5/6 * (2i + 2j - 2k), 10/(4 * \sqrt{}$

c. none of the options

d. $5/6 * (2i + 2j + 2k), 5/(\sqrt{12})$

Your answer is correct.

The correct answer is:
$5/6 * (2i + 2j - 2k), 5/(\sqrt{3})$

Question 9

rect

1.00 out of 1.00

A Force 50 Jules is applied on an object to move from a P to Q (horizontally). The displacement PQ is 4 m. The force is applied at an angle 60 degrees to PQ. What is the work done?

Select one:

- a. 100 Jules ✔
- b. 60 Jules
- c. 50 Jules
- d. None of the options

Your answer is correct.

The correct answer is: 100 Jules

Question 10

Correct

ark 1.00 out of 1.00

ag question

Flag question

Check whether the following are true/false for cross product of vectors:

(i) Cross product is commutative

(ii) Cross product is distributive over vector addition

(iii) Associative

(iv) Is zero when vectors are orthogonal

Select one:

a. ii and iii are true

b. All options are flase

c. All options are true

d. i and iii and iv are false ✔

e. i and ii are true

'our answer is correct.

ne correct answer is: i and iii and iv are

A handle bar of length 4 ft is acted upon by a force of 20lb at an angle 30 degrees. What is the magnitude of the torque generated by this force?

Select one:

- a. 40 ft-lb ✔
- b. None of the options
- c. 80 ft-lb
- d. 70 ft-lb

Your answer is correct.

The correct answer is: 40 ft-lb

Question 12

Incorrect

k 0.00 out of 1.00

ag question

What is the volume of the (parallelepiped) determined by the vectors u=-i+2j-3k, v=2i+3k, w=7j-4k?

Select one:

- a. 23 units
- b. None of the options
- c. 15 units ✖
- d. 5 units

Your answer is incorrect.

The correct answer is: 5 units

Question 13

Not answered

Marked out of 3.00

Flag question

What is the distance from a point S(1,2,5) to a line described by the parametric equation: x=2+t, y=3+t, z=1+2t.

Select one or more:

- a. $72/\sqrt{6}$
- b. None of the options
- c. $\sqrt{72}/6$
- d. $\sqrt{12}$

Your answer is incorrect.

The correct answer is: $\sqrt{12}$

Question 14

Correct

Mark 2.00 out of 2.00

Flag question

Find the Equation of a plane through $P_0(3, 2, 7)$ perpendicular to n=5i+2j-k.

Select one:

- a. 5x+2y+z=22
- b. 5x+2y-z=-22
- c. 5x+2y-z=12 ✔
- d. 5x+2y-z=22

Your answer is correct.

The correct answer is: 5x+2y-z=12

Question 15

Incorrect

Mark 0.00 out of 3.00

Flag question

nd the distance of a point S(1,1,3) to the

Find the distance of a point S(1,1,3) to the plane 3x+2y+6z=12.

Select one:

- a. 17/7
- b. 19/7
- c. 25/7 ✖
- d. 11/7

Your answer is incorrect.

The correct answer is: 11/7

Question 16

Not answered

Marked out of 2.00

Flag question

Match the following:

1) $x^2 + y^2 + 4z^2 = 10$ a) Hyperboloid

2) $z^2 + 4y^2 - 4x^2 = 4$ b) Cylinder

3) $9y^2 + z^2 = 16$ c) Ellipsoid

Select one:

- a. 1->c, 2->b, 3->a
- b. 1->a, 2->c, 3->b
- c. 1->a, 2->b, 3->c
- d. 1->c, 2->a, 3->b

Your answer is incorrect.

The correct answer is: 1->c, 2->a, 3->b

Question 17

Not answered

ed out of 1.00

Find the point where a line : x=5/3+3t, y=1-t, z=1+t intersect with a plane:

3x+2y+6z=0.

Select one:

- a. x=-4/3, y=0, z=2
- b. x=-4/3, y=2, z=0
- c. x=2/3, y=2, z=0
- d. x=4/3, y=2, z=0

Your answer is incorrect.

The correct answer is: x=-4/3, y=2, z=0

Question 18

Partially correct

Mark 1.00 out of 2.00

Flag question

What is the center and radius of a sphere:

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

Select one:

a. (-2,-3/2,0), $\sqrt{17/2}$

b. (2,-3/2,0), $\sqrt{17/2}$

c. (-2,3/2,0), $\sqrt{17}/2$

d. None of the options

e. (2,-3/2,0), $\sqrt{17}/2$ ☑

Your answer is partially correct.

The correct answer is: (-2,3/2,0), $\sqrt{17}/2$

Question 19

Incorrect

Mark 0.00 out of 1.00

lag question

Three identical boxes contain red and white balls. The first box contains 3 red and 2 white balls, the second box has 4 red and 5 white balls, and the third box has 2 red and 4 white balls. A box is chosen very randomly and a ball is drawn from it. If the ball that is drawn out is red, what will be the probability that the ball is chosen from the second box?

Select one:

- a. 10/31
- b. 30/62
- c. None of the options ✖
- d. 10/21
- e. 20/31

Which of the following statement/s is/are true?

Select one:

a. P(A|B)=P(B|A) if A and B are equally likely events

b. P(AUB)=P(A)+P(B), if A and B are independent events

c. P(A|B)=P(A) if A is conditionally dependent on B

d. P(AB)=P(A) and P(B) is A and B are mutually exclusive events

Your answer is incorrect.

The correct answer is: P(A|B)=P(B|A) if A and B are equally likely events

Consider a matrix $A = \begin{bmatrix} 2 & 3 \\ 4 & 5 \end{bmatrix}$. What will be the L matrix if we decompose A into LU. Where L and U are the lower and upper triangular matrices, respectively.

Select one:

- a. $\begin{bmatrix} 2 & 0 \\ 3 & -1 \end{bmatrix}$
- b. $\begin{bmatrix} 1 & 0 \\ 2 & 1 \end{bmatrix}$
- c. $\begin{bmatrix} 2 & 3 \\ 0 & -1 \end{bmatrix}$
- d. $\begin{bmatrix} 1 & 0 \\ -2 & 1 \end{bmatrix}$ ✖

Consider three points A(0,3,0) B(2,0,0) C(0,0,1)on a plane. What is the vector perpendicular to AB and AC?

Select one:

a. $3x+2y+6z=1$

b. $-3i+2j-6k$

c. $-3i-2j-6k$ ✔

d. $3i+2j+6k=0$