Deepanshu Dabas <deepanshu21249@iiitd.ac.in>

Submission 2

1 message

Google Forms <forms-receipts-noreply@google.com> Tue, Feb 1, 2022 at 6:30 PM
To: deepanshu21249@iiitd.ac.in

Google Forms

Thanks for filling out Submission 2

Here's what was received.

Edit response

Submission 2

Your email (**deepanshu21249@iiitd.ac.in**) was recorded when you submitted this form.

Question *

Let A be an $m \times n$ matrix (where $m, n \in \mathbb{N}$) and let A' be a matrix obtained by performing a row operation on A.

- ○ If A has linearly independent rows then A' must have linearly independent rows.
- ○ If A' has linearly independent rows then A must have linearly independent rows.
- ◉ A has linearly independent rows if and only if A' has linearly independent rows.
- ○ None of the above.

Question *

Let v_1, v_2 and v_3 be three non-collinear vectors in $\mathbb{R}^3$. Let

$$S = \{c_1v_1 + c_2v_2 + c_3v_3 \mid c_1, c_2, c_3 \in (0, 1), c_1 + c_2 + c_3 = 1\}$$

Choose any correct statement from the following:

$S \not\subset \mathrm{Span}\{v_1, v_2, v_3\}$

($A \not\subset B$ means A is not a subset of B)

'Screenshot from 2022-01-31 19-13-58.png'

$S \subsetneq \mathrm{Span}\{v_1, v_2, v_3\}$

($A \subsetneq B$ means A is a proper subset of B)

'Screenshot from 2022-01-31 19-11-32.png'

S is the interior of a triangle which passes through the origin and whose vertices are v_1, v_2 and v_3

'Screenshot from 2022-01-31 19-12-33.png'

S is the interior of a triangle whose vertices are v_1, v_2 and v_3

'Screenshot from 2022-01-31 19-14-01.png'

$\mathrm{Span}\{v_1, v_2, v_3\} \subset S$

'Screenshot from 2022-01-31 19-11-11.png'

$S = \mathrm{Span}\{v_1, v_2, v_3\}$

'Screenshot from 2022-01-31 19-11-21.png'

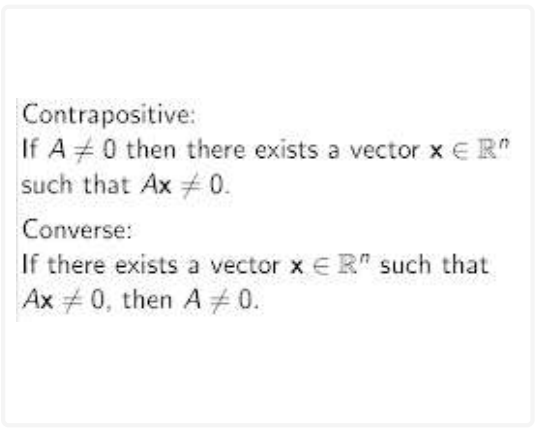
S is a plane in $\mathbb{R}^3$ which passes through the origin

'Screenshot from 2022-01-31 19-18-32.png'

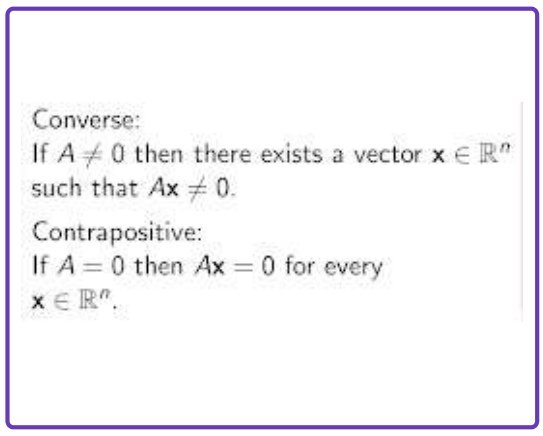
Question *

Let A be an $m \times n$ matrix (where $m, n \in \mathbb{N}$). Identify the correct contrapositive and converse of the following statement:

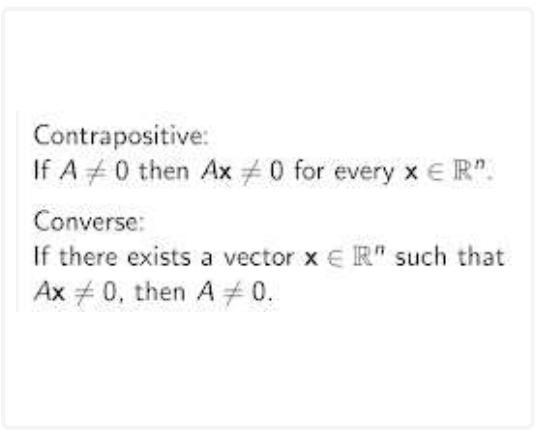
If $A\mathbf{x} = 0$, *for every* $\mathbf{x} \in \mathbb{R}^n$, *then* $A = 0$.



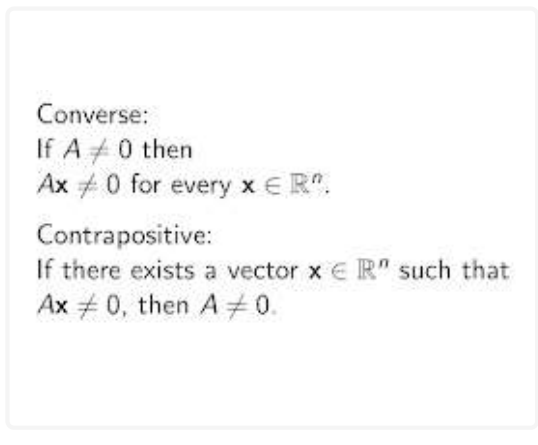
'Screenshot from 2022-01-31 19-14-32.png'



'Screenshot from 2022-01-31 19-12-08.png'



'Screenshot from 2022-01-31 19-13-53.png'



'Screenshot from 2022-01-31 19-18-09.png'

Question *

Let A be an $m \times n$ matrix (where $m, n \in \mathbb{N}$). Let A' be the RREF of A.

Decide whether the following statement is true or false:

If one of the entries of A' is a number which is other than 0 or 1 then the columns of A must be linearly dependent.

True

False