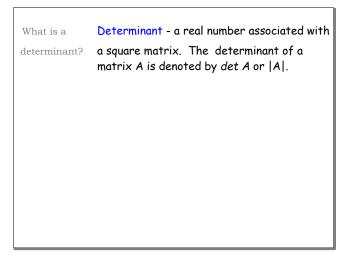
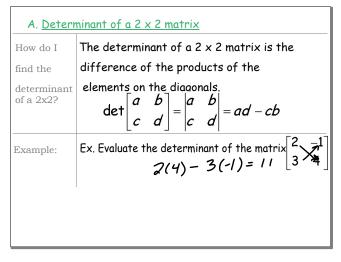
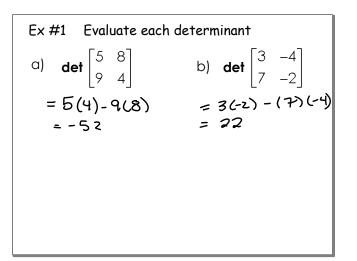
## 4 Determinants and Inverses.notebook

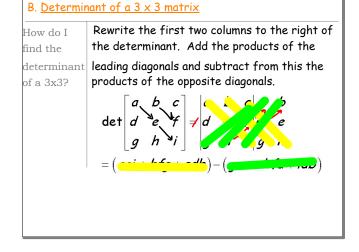






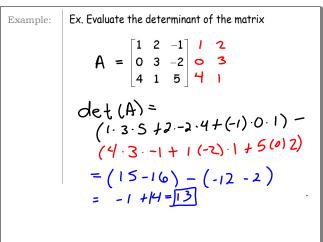




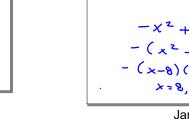


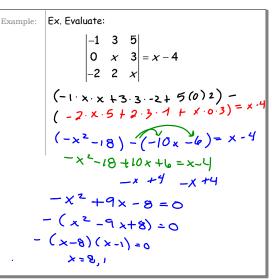
Jul 18-2:54 PM

Mar 20-4:08 PM

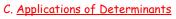


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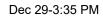
## 4 Determinants and Inverses.notebook



How can I	The determinant of a matrix can be used to
use	find the area of a triangle.
determinants?	If $(x_1, y_1)$ , $(x_2, y_2)$ , and $(x_3, y_3)$ are vertices
	of a triangle, the area of the triangle is:
	Area = $\pm \frac{1}{2} \begin{vmatrix} x_1 & y_1 & 1 \\ x_2 & y_2 & 1 \\ x_3 & y_3 & 1 \end{vmatrix}$
L	

Jan 11-11:39 AM

Example: Ex. Find the area of the triangle given the points (-2, 1), (4, 7), (9, 8).  $A = \frac{-1}{-2} \begin{vmatrix} -2 & 1 & 1 \\ 4 & 7 & 1 \end{vmatrix}$   $= \frac{-1}{2} \left[ (-2 \cdot 7 \cdot 1 + 1 \cdot 1 \cdot 9 + 1 \cdot 4 \cdot 8) - (9 \cdot 7 \cdot 1 + 8 \cdot 1 \cdot -2 + 1 \cdot 4 \cdot 1) \right]$   $= \frac{-1}{2} \left[ (27 - 51) + (27 - 51) \right]$   $= \frac{-1}{2} \left[ (-27 - 51) + (-27 - 51) \right]$   $= \frac{-1}{2} \left[ (-27 - 51) + (-27 - 51) \right]$ 



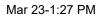
How do I find the find the **Given the matrix**  $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$  and assuming  $ad - cb \neq 0$ 

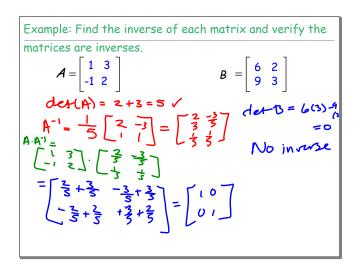
 $\mathcal{A}^{-1} = \frac{1}{|\mathcal{A}|} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix} = \frac{1}{ad - cb} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$ 

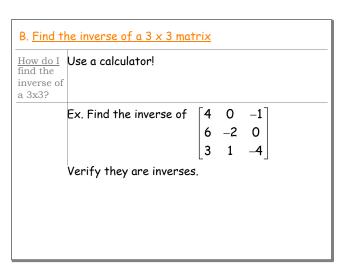
A. Find the inverse of a  $2 \times 2$  matrix

inverse of a 2x2?

What is an	Identity matrix - a square matrix with 1's along
identity	the leading diagonal and 0's elsewhere.
matrix?	• An identity matrix is denoted using I.
	• <i>AI</i> = <i>IA</i> = <i>A</i> .
What is an	Inverses - the square matrices A and B are
inverse?	inverses of each other if their product
	(in both orders) is equal to an identity matrix.
	i.e. AB=I and BA=I.
	<ul> <li>Matrix A has an inverse iff det A ≠ 0</li> </ul>
	• The inverse of matrix A is denoted as A <sup>-1</sup> .







Mar 23-1:29 PM

