Algebra 2 3.8

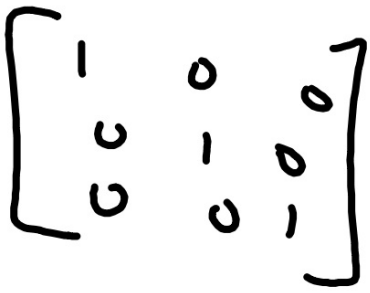
Find the inverse of a 2x2 matrix

Write and solve matrix equations

Quiz 3.7-3.8 Tues..
Test Ch. 3 Thurs.

identity matrix
inverse matrix
matrix equation
coefficient matrix
variable matrix
constant matrix
whiteboards
Wife Swap







coefficient matrix
variable matrix
constant matrix

Graphing calculators

Use a matrix equation to solve each system of equations.

9. $-2x + y = 9$
$x + y = 3$

10. $4x - 2y = 22$
$6x + 9y = -3$

$$\begin{bmatrix} -2 & 1 \\ 1 & 1 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 9 \\ 3 \end{bmatrix}$$

A B

$$A^{-1} \cdot B = \begin{bmatrix} -2 \\ 5 \end{bmatrix}$$

$$\begin{bmatrix} -1 & 1 \\ -1 & 1 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 4 \\ -4 \end{bmatrix}$$

A

What does it mean if det=0?

$$\begin{vmatrix} -1 & 1 \\ -1 & 1 \end{vmatrix} = -1 + 1 = 0$$

27. $-x + y = 4$
$-x + y = -4$

Leverage technology:
you still need a plan...

11. $-2x + y = -4$
$3x + y = 1$

$$A = \begin{bmatrix} -2 & 1 \\ 3 & 1 \end{bmatrix} \quad \begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -4 \\ 1 \end{bmatrix} \quad B$$

$$A^{-1} \cdot B$$

equations:
3x3 using inverse matrix
Whiteboards

39. $2a - b + 4c = 6$
$a + 5b - 2c = -6$
$3a - 2b + 6c = 8$

$$\begin{bmatrix} 2 & -1 & 4 \\ 1 & 5 & -2 \\ 3 & -2 & 6 \end{bmatrix} \cdot \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 6 \\ -6 \\ 8 \end{bmatrix}$$

C D

(-6,2,5)

$A^{-1} \cdot B$

*

WB 3.8 1-12 pr.
1-17 odds sk.

40. $3x - 5y + 2z = 22$
$2x + 3y - z = -9$
$4x + 3y + 3z = 1$

(1,-3,2)

41. $2q + r + s = 2$
$-q - r + 2s = 7$
$-3q + 2r + 3s = 7$

(0,-1,3)

What if one of the terms is missing from the equation?

$2x+3y-z=7$
$5x+4y=-3$
$x-5y=17$

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