Notes Section 6.6 – Inverses of Matrices

Lesson Objective

1. Find the inverse of a matrix using TI-84/83 Plus calculator.

Find the Inverse of a Matrix – using TI-84/83 Plus calculator

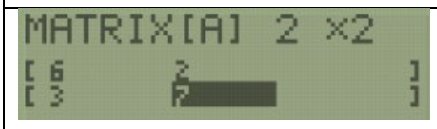
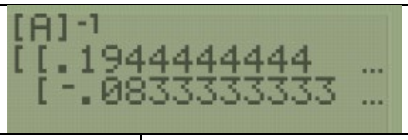
This assignment will go fairly quickly for you, as long as you have your calculator.

No matter what the directions say in the questions, **always** use the calculator, not by hand.

- **EXAMPLE:** For $A = \begin{bmatrix} 6 & 2 \\ 3 & 7 \end{bmatrix}$, find A^{-1} ~~without using a calculator~~. [6.6.19]

  Psst! Use the calculator – **don't** do this by hand!

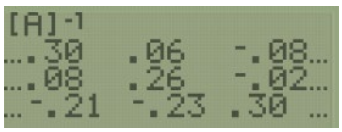
  NOTE: A^{-1} is read as "the **inverse** matrix of *A*," or more simply "*A*-inverse."

STEP 1: Enter matrix into calculator.	STEP 2: Return to home screen and recall matrix A.	Step 3: Press the x^{-1} button to get the – 1 exponent, then ENTER.
		
(After Step 3) Note the ellipsis marks at the right (the three dots in a row …). That means there's more information. Press the right arrow to see more.	Step 4 (if needed): Convert decimals to fractions by pressing **MATH, ENTER, ENTER**. 	Solution $A^{-1} = \begin{bmatrix} \frac{7}{36} & -\frac{1}{18} \\ -\frac{1}{12} & \frac{1}{6} \end{bmatrix}$

- **EXAMPLE:** Let *A* be the given matrix. Find A^{-1} with a calculator. [6.6.31-GC]

  (Round to the nearest hundredth, as needed). $A = \begin{bmatrix} 4 & 0 & 1 \\ -1 & 4 & 0 \\ 2 & 3 & 4 \end{bmatrix}$

  To help with rounding for this problem, press **MODE**, go to the "FLOAT" row, and select number "2," for 2 decimal places, since you are rounding to hundredth.



Solution: $A^{-1} = \begin{bmatrix} 0.30 & 0.06 & -0.08 \\ 0.08 & 0.26 & -0.02 \\ -0.21 & -0.23 & 0.30 \end{bmatrix}$

Sources Used:

1. Pearson MyLab Math *College Algebra with Modeling and Visualization, 6th Edition*, Rockswold
2. Wabbitemu calculator emulator version 1.9.5.21 by Revolution Software, BootFree ©2006-2014 Ben Moody, Rom8x ©2005-2014 Andree Chea. Website https://archive.codeplex.com/?p=wabbit