Exam 2 Study Guide

2.1

Cofactor Expansion

Determinant of 2x2

Det(A) = a11 a12

a21 a22

Det(A) = a11\*a22-a12\*a21

Determinant of 1 x 1

Det(A) = a11

Each entry in a 2 x 2 is simply a 1 x 1 matrix

So, a 2 x 2 can now be written as

Det(A) = det[a11]\*det[a22]-det[a12]\*det[a21]

Minors

The minor entry of aij is denoted by Mij

Determinant of submatrix of a after we delete ith row and jth column

A = 3 1 -4

2 5 6

1 4 8

M11 = 5 6

4 8

M11 = 5(8)-4(6)

M11 = 16

Cofactor Entries

Cij = (-1)^(i+j) \* Mij

C11 = (-1)^(1+1) \* 16

C11 = 16

Relating the two

Det(a) = cofactor expansion along any row or column

2.2

2.3

4.1

4.2

4.3

4.4

4.5

4.6

4.7

4.8

4.9