<선대 요약 정리> 201702039 오명주

*5.1 The Properties of Determinant*

Determinant : 판별식

Properties of Determinant

* Rule1 : det(I) = 1
* Rule2 : det(P) = 1 (row를 짝수 번 exchange 했을 때)

= -1 (row를 홀수 번 exchange 했을 때)

* Rule3★★★

* Rule4 : A의 두 row가 같다면 det(A) = 0

*5.2 Permutations and Cofactors*

***Pivot Formula***

If no row exchanges are involved, A = LU -> det(A) = det(L)det(U) = (1)(

If row exchanges are involved, PA=LU-> A= -> det(A) = det(det(L)det(U) =

If A has fewer than n pivots, then A is singular. -> det(A) = 0

***Big Formula***

* n = 2일 때

* n = 3일 때

=

* n x n 일 때
* columns(1,2,3… n) -> n!개 : permutation

***Cofactor***

If 일 때,

*5.3 Cramer;s Rule, Inverse, and Volumes*

***Cramer’s Rule*** : Ax = b 활용하여 해결

Ex)

***Area of Parallelogram***

(a,b), (c,d) -> A = ,

***Area of Triangle***

1. (2,2), (4,5), (5,3)일 때 (2,2)를 (0,0)으로 옮긴다 -> (0,0), (2,3), (3,1)

***Cross Product***

* Where i = (1,0,0), j = (0,1,0), k = (0,0,1)
* V x u = -(u x v)

*6.1 Introduction to Eigenvalues*

- : x를 행렬 A로 선형변환한 결과가 x의 상수배로 나타나는 x(0이 아님)를 고유벡터, 고유값을

-

Ex)

For

For

* N만큼 제곱했을 때

***Eigenvectors of Symmetric Matrix(대칭행렬)***

* A : symmetric matrix

***Markov Matrix***

* 모든 열의 원소들의 합은 1이다, 가장 큰
* X1은 steady state. (Ax1 = x1)

***Eigen ~ of Projection Matrix P : p=Pb***

Ex) P =

For

For

* Any vector is a linear combination of eigenvectors.

V =

***Eigen ~ of Reflection Matrix R***

Ex) R =

* Each column of A is a linear combination of x1, x2
* Trace(A) =
* Det(A) = (upper triangle일 때)

Ex) A = , A =