Math 10 Wrksheet 5 1 By the adefinition of importibility, and assuming (ABC) = C'B'A', by the associatively law of inverse matrix then.

ABC(C'B'A') = C'B'A' (AB) = In Welcay rearrange the second equation as C'B'CA'A) BC=In A'A=In making the equation

C'B'BC=In repeating this process w/B'B

C'(B'B) C= In C'Z=In In=In which is true,

meaning that CABC)'=C'B'A' QEO 2. By Theorem 3 of Chapter 3, when one row of Anxa is multiplied by a constant K to create Books, det8= KdEKA If A = [an ann] then cA = [can - Can ] We are multiplying the rows by C, meaning by theorem 3, det CCA) = C·C·C·c·c·detCAY= CdetCAY

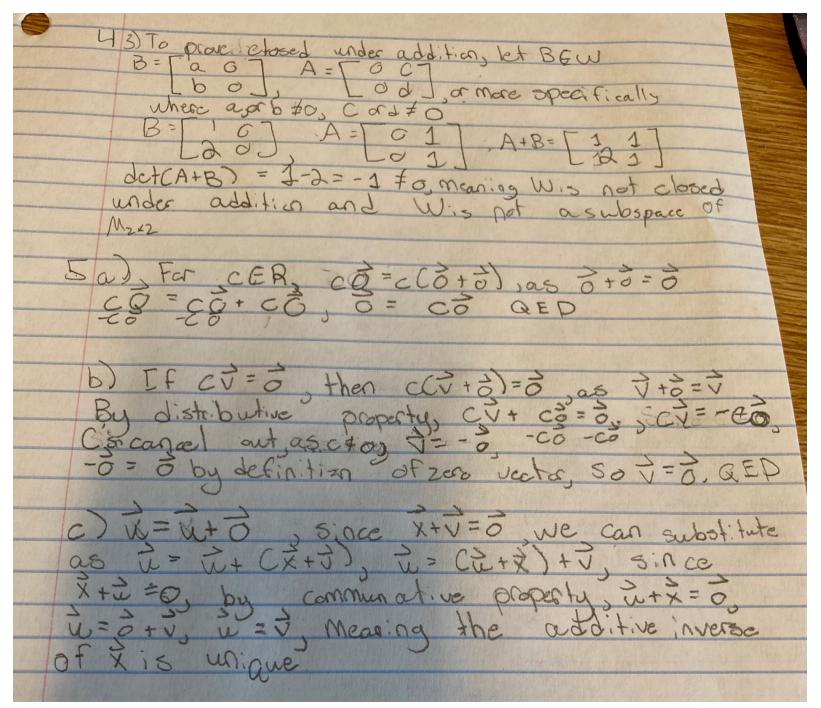
n times

GED To prove det (A-1) = (det(A)) = det(A), first, we know from theorem 6 that det(AB) = detA. det B. We also Know that A.A. = In where A are of size nxn. det(A·A-1) = det(In) = det(A) - det(A-1) det (In) In=[e, e, en]. The determinant of a diagonal matrix is the product of it's diagonal entries. It is a diagonal matrixwhere all diagonal entries equal 1. Therefore, det (In)=1, meaning that  $2 = \det(A)$  odet (A-1), det(A) det(A) det(A)

3 For W to be a subspace of IP3 & Conditions must be fulfilled let fand g be functions in W.

1.) Wish a subseit of IP3, which mis frue 2) Wmust contain the zero vector of P3.0 PCOD= 0=PC+D3 meaning that own contains the zero vector 3.) Wmust be closed under addition meaning that (fra) E W - Cfra) (x) = f(x) +q(x) (Fra)(o) = (Fra)(1); f(c)+c(o) = f(1)+g(1); whichistone, meaning Wis closed underaddition H.) W must be closed under Scalar
multiplication, meaning that CFCX) & W.

- CFCO) = CFCD, which is still true 4 If W= {AEM212 det(A)=0} , then A=[05] or A = [a B] one column must be o To see if W is a subspace of Marza let's check the 4 conditions 1) W is a subset of Mzez a column equivalent to o 3) To prove closed under addition, let BEW



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