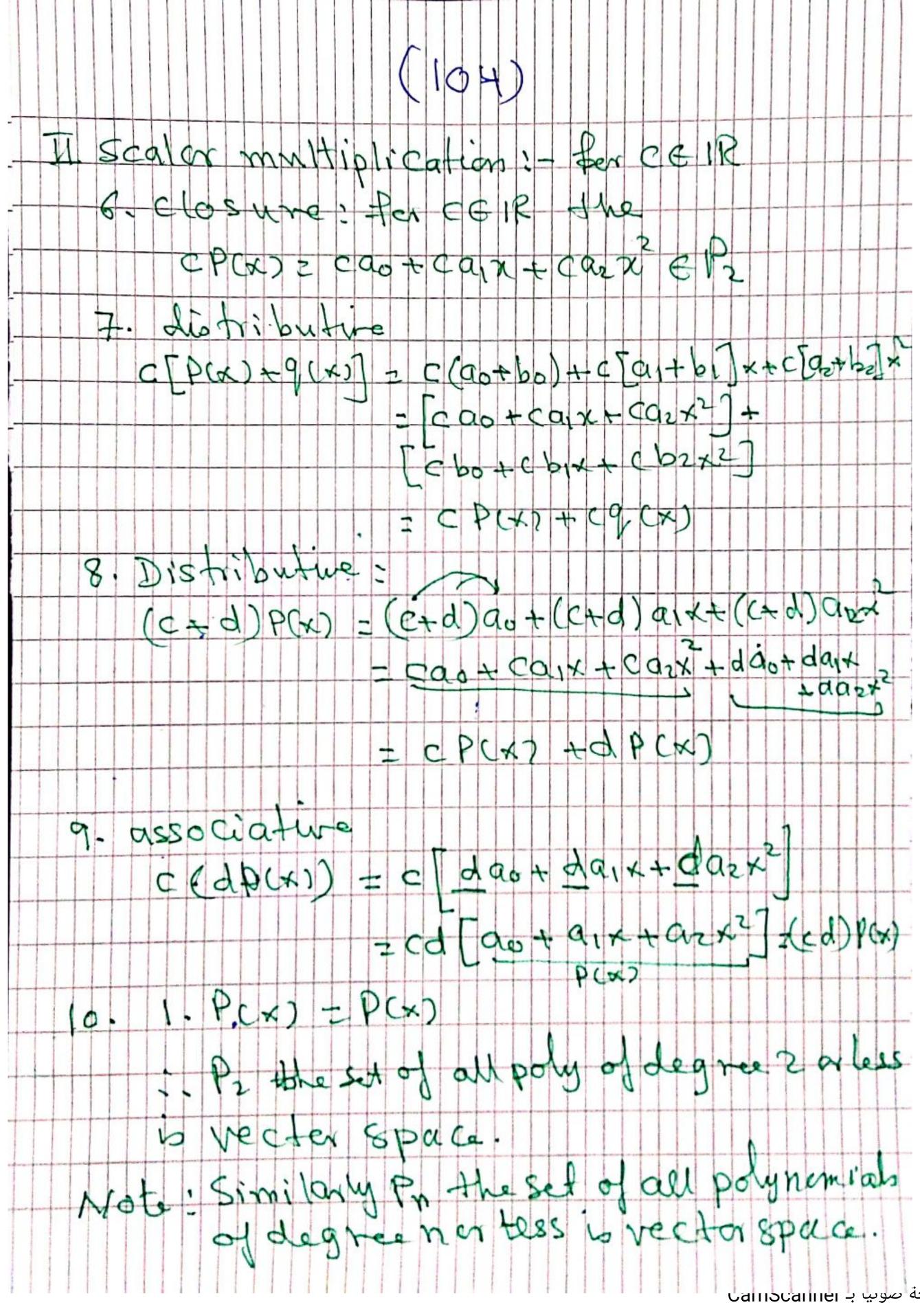
(102) orsairs) of 151 1.2 Verter spaces Let V be a set on which two openations (vector additive & scalor multiplication) thre defined for every vectors u, o, well and a, d & 1R (scenters), then V is a vector space if the following axioms are satisfied (I) For additive UNUEV Closure 2. 4+0=19+0 commutature 3. U+(17+W)=(1+4)+W associative 2-48 EV S. H YueV DU associ صوبيا : CamScanner

Ex(4) let P2 be the set of all polynamials
of the form p(x) = a0 + a1x + a2x2 (of deg. 2) and quel= bo+ b1x2 show that B is a rector space. PA: (I) additive 1. closure: P(x)+9(x)=(a0+b0)+(a1+b1)x + (a2+b2)x2 EP2 P(x)+9(x)= (a0+b0)+(a1+b1)x+(a2+b2)x2 = (bo+ao)+(b1+a1)x+(b2+a2)x2 = 0 (x) + P(x) R(x) = [(a0+ b0)+Co] + [(a1+b1)+C]x 92+02)+(5 = ac+(bc+(b) + [Ac+(b1+4)]x = P(x)+[9(x)+R(x) - P(X) = - a6 + a1x - a2x (x) + (-P(x)) = O(x)

تم نہ amocanner

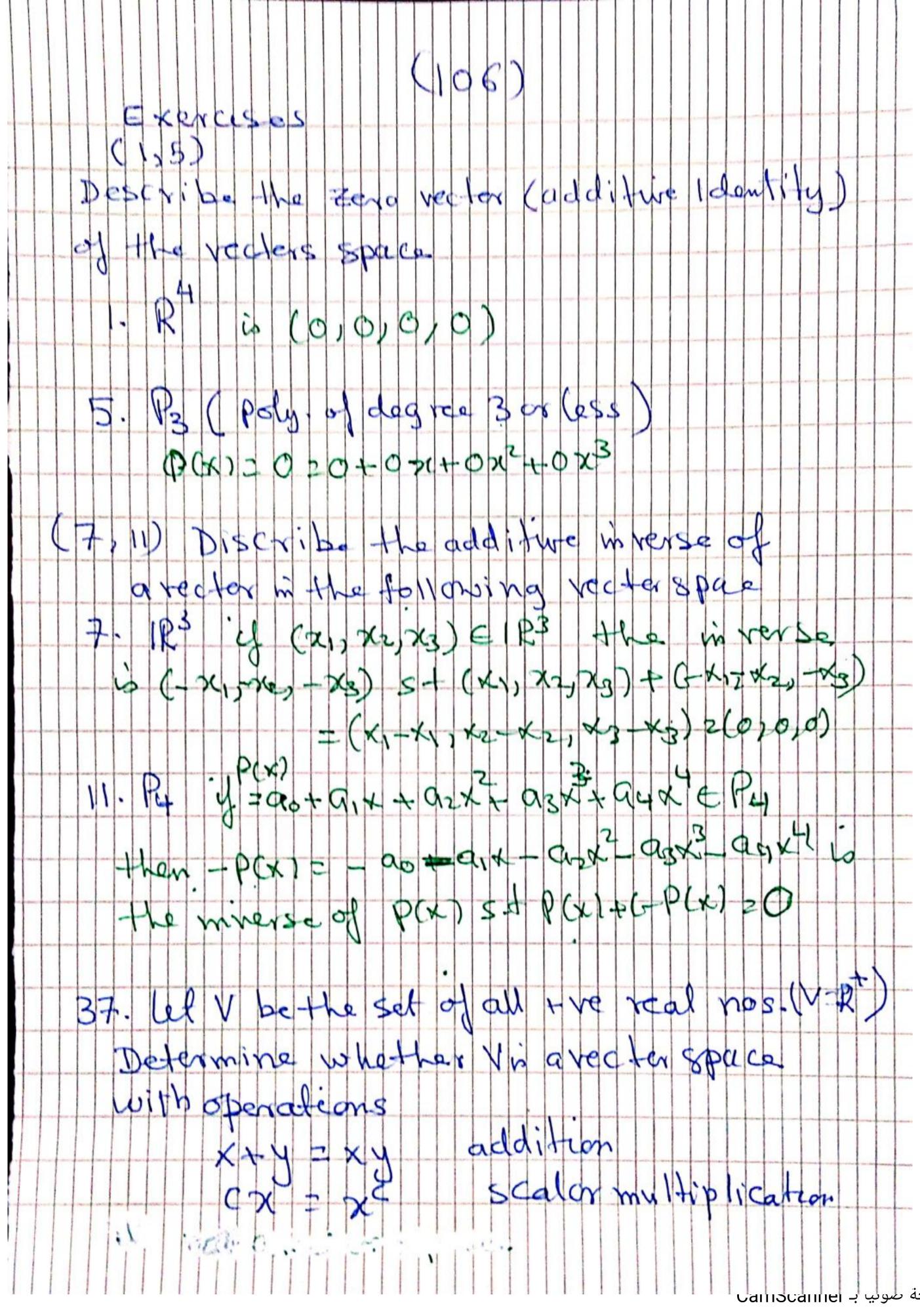


(105) Ex(6) Show that the set of all in tegens number under additivo & multiplicalion is not a vector sporce Sel let 1/2 (1R & XEII = {0111}, 123, => 1 C = I Ex(3 ∈ I =) 3 ¢ I)

not closure under multiplication

Ex(6) The Set of 2" degree polynomials is not a vector space letter=1+x-x2 and 9 Cx7 one poly. of degree 2 PCXItqCx12 2+2x : in-ipolyofdegree not of degree 2 not closure moler additive under addition & scalor multiplication as ((21)22) 2 ((x1,0) Vis not recter space. all first

نهٔ صویب با Varriouallilei



let u, v, we ist 2V c, d & is (scaler) I Additive: uto=uo 1) closure u+v= 2 uv & IR=V 2) commutative uto z uo z vu = v=u 3) associative (u+10-)+w=(u0)+w=(u0)w=16(00) U+(U+W) 1 is an identity of additive, IEIRT as for any ueint there is the EIR's.t リルナサスル・デュー 27 this am additive inverse of u (II) For scaler multiplication cuz le 6) CUZLIEIR ZV closure 7) C(U+10) z (U+10) = (U10) = (U1) = C0= CU+CO (distributive) u. u = cu + du (distoibutive) tre number V=1R is a vector space under both given operations