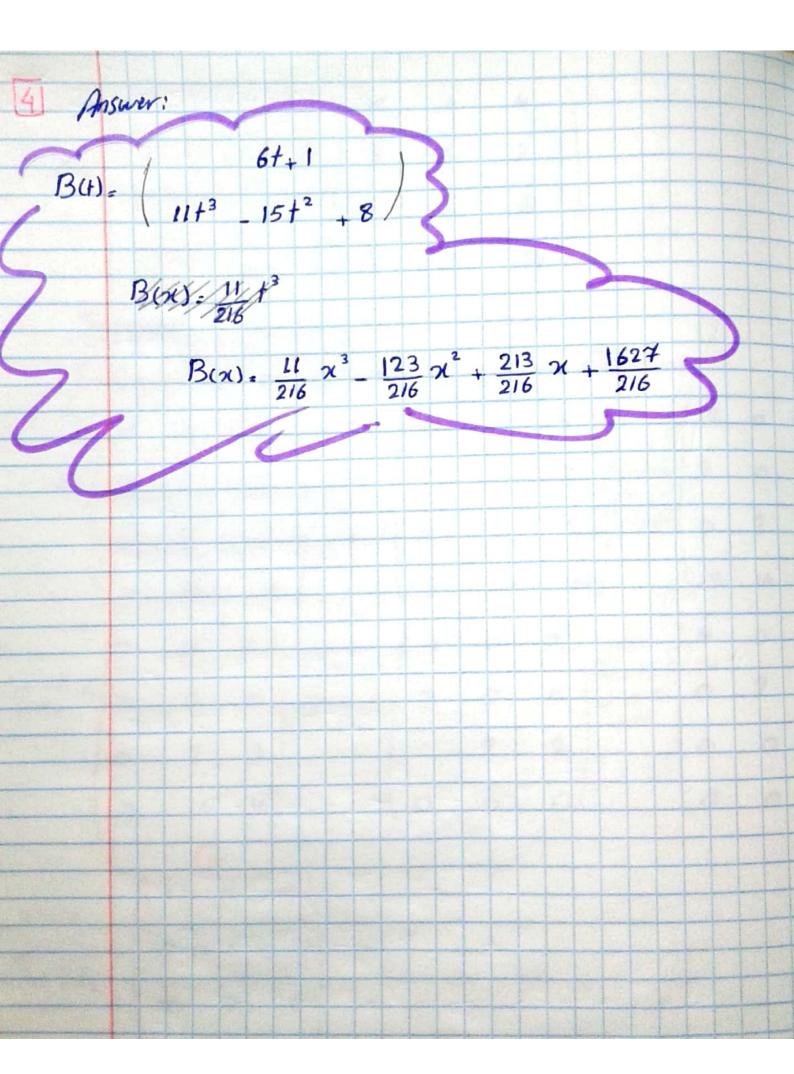
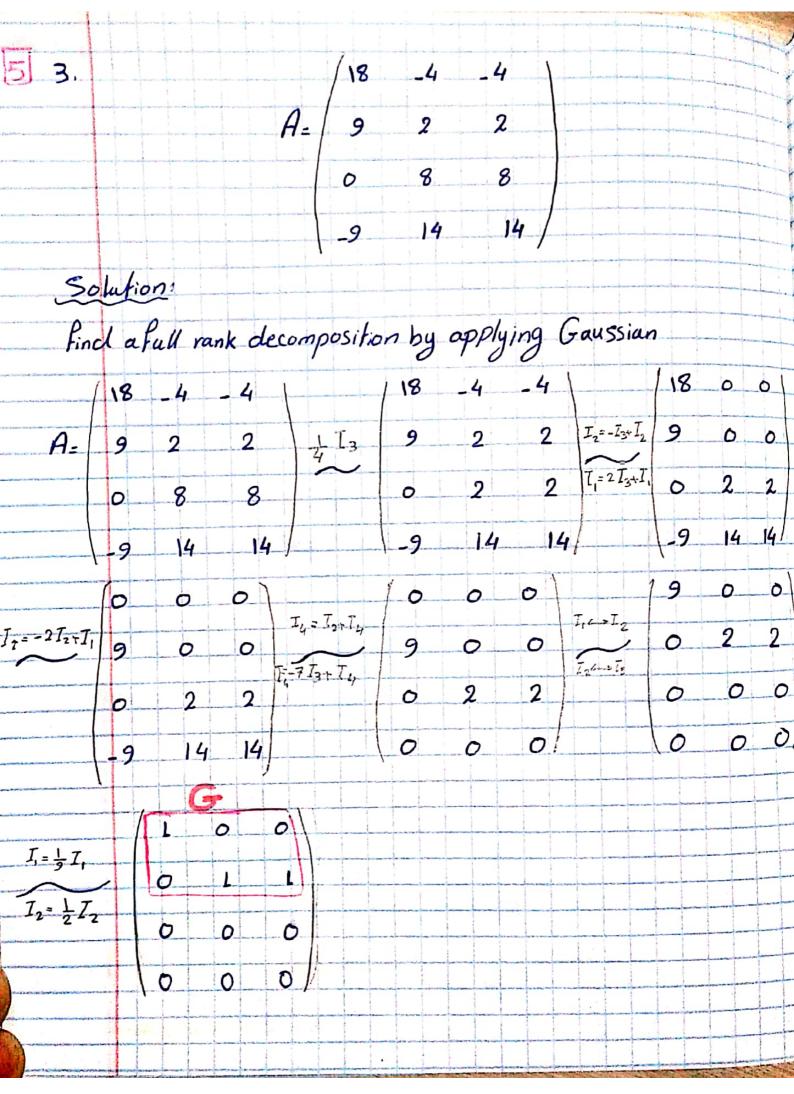
	Th
Bayan Hendawi	
_ Applied Linear Algebra Test 1 , Variant 43	
and the second of the second o	
1. $P = \begin{bmatrix} -2 & -1 & 2 & 3 \end{bmatrix} \rightarrow \alpha$	
$P = \begin{bmatrix} -2 & -1 & 2 & 3 \\ -2 & 20 & -10 & -17 \end{bmatrix} \Rightarrow y_1$	
Solution:	
By Zagrange Pormula	
$p(x) = \sum_{i \in I} y_i \prod_{j \in I} \frac{x - x_j}{x_i - x_j}  \text{in the number}$ of points	
A STATE OF THE PROPERTY OF THE	
$p(x) = -4 \frac{(\chi+1)(\chi-2)(\chi-3)}{(-3+1)(-2-2)(-2-3)} + 20 \frac{(\chi+2)(\chi-2)(\chi-3)}{(-1+2)(-1+2)(-1-3)}$	
$10 \frac{(3+2)(3+1)(3-3)}{(3+2)(3+1)(3-2)}$	
$\frac{10}{(2+2)(2+1)(2-3)} \qquad (3+2)(3+1)(3-2)$	
$\frac{4(x+1)(x^2-5x+6)}{(5)(-5)(-5)} = \frac{1}{5}(x^3-5x^2+6x+x^2-5x+6)$	6)
$(-1)(-4)(-5) = \frac{1}{5}(\chi^3 - 4\chi^2 + \xi\chi + 6) - (-1)(-4)(-5)$	
2	
$20 \frac{(\chi^2-4)}{(1)(-3)(-4)} = \frac{5}{3} (\chi^3-4\chi-3\chi^2+12) - (\frac{3}{2})$	
$\frac{3}{15}(\chi^3-4\chi^2+\chi+6)+\frac{25}{3}(\chi^3-4\chi-3\chi^2+12)$	
28 ~3 87 ~2 97 ~ 318	
$= \frac{28}{315} \chi^{3} + \frac{87}{15} \chi^{2} + \frac{97}{15} \chi + \frac{318}{15}$	

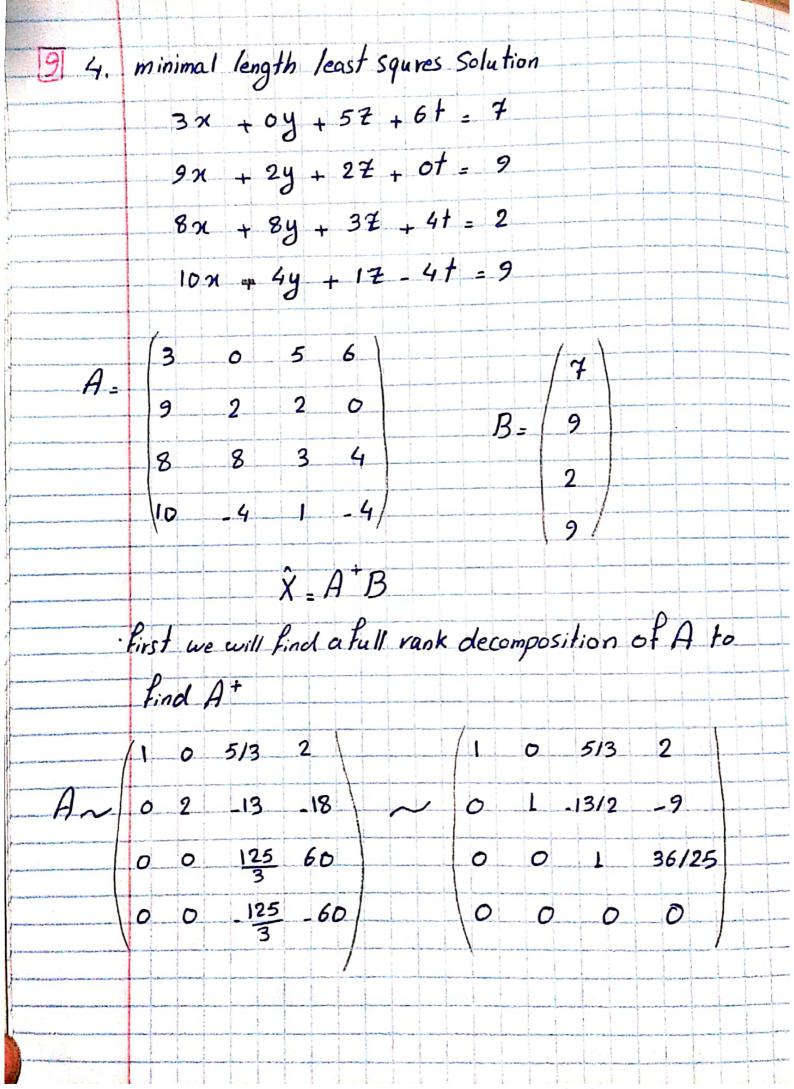
3 2. Bezier curve  $P = \begin{bmatrix} 1 & 3 & 5 & 7 \\ 8 & 8 & 3 & 4 \end{bmatrix} \Rightarrow \chi_{i}$ B(+) = \( \frac{1}{k+0} \) \( \rac{p}{n} \) (+) \( \frac{A}{k} \) \( \frac{p}{n} = \binom{n}{k} \) (1-t) \( \frac{1}{k} \)  $B_{x}(t) = (1-t)^{3}(1) + 3t(1-t)^{2}(3) + 3t^{2}(1-t)(5) + t^{3}(7)$ - (-t3+3+2-3++1)+9+(+2-2++1)+15+2(1-+)+7+3 = -t3+3t2-3t+1+9+3-18t2+9++15t2-15+3+7+3 Bx(+) = 6++13 By(+) = (1-+)3(8) +3+(1-+)2(8) +3+2(1-+)(3) ++3(4) =  $(-t^3+3t^2-3t+1)(8)+24t(t^2-2t+1)+9t^2(1-t)+4t^3$ = -8t3 + 24t2 24t +8 +24t3 48t2 +24t +9t2 9t3 +4t3 By(+). 11+3 - 15+2+8  $\chi = 6t + 1 \longrightarrow t = \frac{\chi - 1}{6}$  $B(x) = 11(\frac{x-1}{6})^3 - 15(\frac{x-1}{6})^2 + 8$  $=\frac{11}{216}(21-1)^{3}-\frac{15}{36}(21-1)^{2}+8$  $=\frac{11}{216}(\chi^{3}-3\chi^{2}+3\chi-1)-\frac{15}{36}(\chi^{2}-2\chi+1)+8$  $B(n) = \frac{11}{216} n^3 - \frac{123}{216} n^2 + \frac{213}{216} n + \frac{1627}{216}$ 





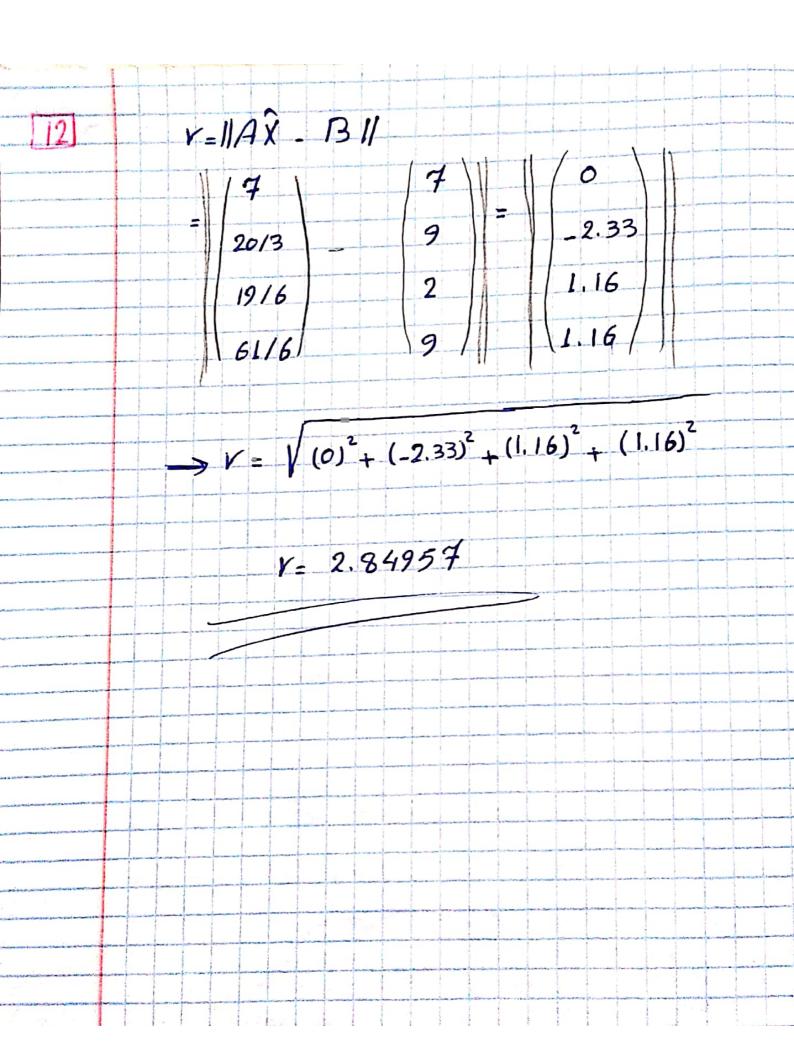
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[35.] 
$$p(\pi) = \chi^3 + 3\chi^2 - 4\chi + 4$$
 [-2.5]

$$T_3(\chi) = 4\chi^3 - 3\chi \quad \text{Chebyshev polynomial deg} = 3$$

$$T_3(\chi) = \frac{4\chi^3 - 3\chi}{2^{2n-1}} \quad T_n \left(\frac{2\chi - (b+a)}{b-a}\right)$$

$$\Rightarrow \frac{7}{32} \quad \left(4\left(\frac{2\chi - 3}{7}\right)^3 - 3\left(\frac{2\chi - 3}{7}\right)\right)$$

$$T_3(\chi) = \chi^3 - \frac{9}{2}\chi^2 - \frac{78}{32}\chi - \frac{549}{32}$$

$$||p(\chi) - q(\chi)||_{\infty} \Rightarrow min \implies ||r(\chi)||_{\infty} \Rightarrow min$$

$$\chi^3 + 3\chi^2 - 4\chi + 4 - q(\chi) = T_3(\chi)$$

$$\chi^3 + 3\chi^2 - 4\chi + 4 - q(\chi) = T_3(\chi)$$

$$\chi^3 + 3\chi^2 - 4\chi + 4 - q(\chi) = \frac{15}{2}\chi^2 - \frac{78}{32}\chi - \frac{549}{32}$$

$$(q(\chi)) = +\frac{15}{2}\chi^2 - \frac{50}{32}\chi + \frac{677}{32}$$

