

المجموعة 3: $I = \int_1^e x + \frac{1}{x} - 2 \, dx = \left[\frac{1}{2}x^2 + \ln x - 2x \right]_1^e = \frac{1}{2}e^2 + 4\ln e - 2e$
 $I = \frac{e^2 + 4e - 4e}{2}$

$J = \int_1^e \frac{2x \ln x}{x} \, dx = \int_1^e \frac{1}{x} \cdot 2x \ln x \, dx = \left[\frac{1}{2}(2x \ln x)^2 \right]_1^e$
 $J = \frac{1}{2}$

$(x \ln x - x)' = \ln x + x \cdot \frac{1}{x} - 1 = \ln x$
 $K = \int_1^e \ln x \, dx = \left[x \ln x - x \right]_1^e = -1$

$L = \int_1^e [x \ln(x)]^2 \, dx = \int_1^e x^2 \ln^2(x) \, dx$
 $L = e - 2 \int_1^e \ln x \, dx = e - 2(-1) = e - 2$

$S = \int_1^e |f(x)| \, dx = \int_1^e \frac{1}{2}(e \ln x)^2 + x - 1 + \frac{1}{x} + 3 \frac{e^x}{x} \, dx$
 $S = \frac{1}{2} \int_1^e (e \ln x)^2 \, dx + \int_1^e (x-1) \, dx + \int_1^e \frac{1}{x} \, dx + 3 \int_1^e \frac{e^x}{x} \, dx$
 $= \frac{1}{2}L + I + 3J = \frac{e^2 - 3e + 12}{2} \quad (V.M)$

أساليب حلول الامتحان التجريبي

ماتري 2011 في فرع 1

تأنيدي بي أفنران

صنهر

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المجموعة 4: $\Delta = -16 \quad (A) \quad \Delta = 24\sqrt{3} + 2i$ و $\Delta = 24\sqrt{3} + 2i$
 $\Delta = [4, \frac{\pi}{6}]$ و $\Delta = [4, \frac{12\pi}{6}] = [4, 2\pi] = [4, 0] = 4 \cdot 1^2 = 4 > 0$

$d = 4 + i(\sqrt{3} + i) = 4 - \sqrt{3} + i = -2\sqrt{3} + 2i$
 $c - d = 4\sqrt{3} - 4i + 2(6 - \sqrt{3}) = 2(2\sqrt{3} - 2i) = 4\sqrt{3} - 4i$
 $AD = |d - a| = |-2i - 2\sqrt{3}| = 4$ و $BC = |1 - 4i| = 4$
 $AC = 2\sqrt{3}$

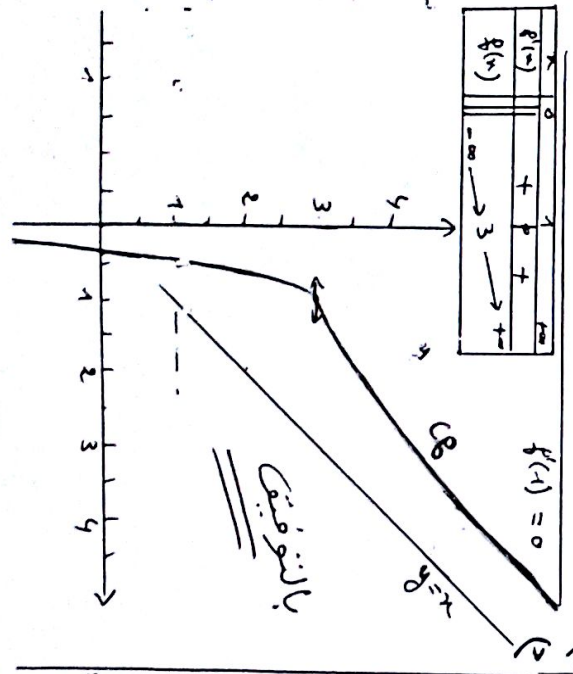
$(A\sqrt{3}, A\sqrt{3}) \equiv \text{ang}(\frac{6-\sqrt{3}}{2}) \equiv \text{ang}(\frac{1}{2} + i\frac{\sqrt{3}}{2}) = \frac{\pi}{3} \quad [2\pi]$
 يعني لزاوية ادر و ادر $(A\sqrt{3}, A\sqrt{3}) \equiv \text{ang}(\frac{6-\sqrt{3}}{2})$ و $\text{ang}(\frac{6-\sqrt{3}}{2}) = \frac{\pi}{3}$ و $\text{ang}(\frac{6-\sqrt{3}}{2}) = \frac{\pi}{3}$
 $\Delta = \frac{\pi}{3} - 4i = (\frac{1}{2} + i\frac{\sqrt{3}}{2})(2 - 4i) \Rightarrow \Delta = (\frac{1}{2} + i\frac{\sqrt{3}}{2})^2 + 2i + 2\sqrt{3}$

مساحة: $A = \frac{1}{2} \times 4 \times 4 = 8$
 و $q(x) = 2x - \frac{2}{x} = \frac{2x^2 - 2}{x}$
 و $q(x) = 2x - \frac{2}{x}$ و $q(x) = 2x - \frac{2}{x}$

المجموعة 2: $f(x) = \frac{e^x - 1}{x}$ و $f'(x) = \frac{e^x(x-1) + 1}{x^2}$
 $f'(x) = \frac{e^x(x-1) + 1}{x^2} = 0 \Rightarrow e^x(x-1) + 1 = 0$
 $f(x) = \frac{e^x - 1}{x} = 1 \Rightarrow e^x - 1 = x \Rightarrow e^x = x + 1$

x	0	1	$+\infty$
$f(x)$	0	1	$+\infty$
$f'(x)$	0	$+$	$+$

$f(x) = 0 \Rightarrow x = 0$ و $f(x) = 1 \Rightarrow x = 1$ و $f(x) = 1 \Rightarrow x = 1$



المجموعة 5: $(x-2)^2 + (y+1)^2 + (z-1)^2 = 12$
 $n = \sqrt{12} = 2\sqrt{3}$
 $N \in (5) \Rightarrow a^2 + b^2 + c^2 - 4a + 2b - 2c - 6 = 0$
 $N \in (3) \Rightarrow 2a - b + c = 10$
 $N \in (1) \Rightarrow a^2 + b^2 + c^2 - 2(2a - b + c) = 6$

المجموعة 6: $P(A) = \frac{6^2 + 4^2}{1000} = \frac{52}{1000}$ و $P(B) = \frac{4}{1000} = \frac{4}{1000}$
 $P(A \cap B) = \frac{3 + 1^2}{1000} = \frac{4}{1000}$
 $P(B/A) = \frac{1}{10} \quad P(C) = \frac{4 \times 4 \times 2 \times 1}{1000} = \frac{32}{1000}$

المجموعة 7: $P(X=0) = P(2\sqrt{3}) = \frac{A_2}{90} = \frac{2}{45}$
 $P(X=1) = P(1\sqrt{3}) = \frac{A_1 \times A_1 \times 2}{90} = \frac{2}{45}$

المجموعة 8: $f(x) = e^x - 1$ و $f'(x) = e^x$
 $f(x) = e^x - 1 = 0 \Rightarrow e^x = 1 \Rightarrow x = 0$
 $f'(x) = e^x = 0 \Rightarrow x = -\infty$

المجموعة 9: $n = 0 \Rightarrow 0 < 1 < 0 < 1 < 0$
 $n = 1 \Rightarrow 1 < 0 < 1 < 0 < 1 < 0$
 $n = 2 \Rightarrow 2 < 0 < 1 < 0 < 1 < 0$

المجموعة 10: $P(A) = \frac{6^2 + 4^2}{1000} = \frac{52}{1000}$ و $P(B) = \frac{4}{1000} = \frac{4}{1000}$
 $P(A \cap B) = \frac{3 + 1^2}{1000} = \frac{4}{1000}$
 $P(B/A) = \frac{1}{10} \quad P(C) = \frac{4 \times 4 \times 2 \times 1}{1000} = \frac{32}{1000}$

المجموعة 11: $f(x) = e^x - 1$ و $f'(x) = e^x$
 $f(x) = e^x - 1 = 0 \Rightarrow e^x = 1 \Rightarrow x = 0$
 $f'(x) = e^x = 0 \Rightarrow x = -\infty$