

التحريقي (04)

0.5 $\lim_{x \rightarrow -\infty} f(x) = \lim_{x \rightarrow +\infty} 1 - \frac{2 \ln(-x)}{-(-x)} = 1$

0.5 $\lim_{x \rightarrow +\infty} f(x) = \lim_{x \rightarrow +\infty} 1 - \frac{2 \ln x}{x} = 1$

0.25 x 4 $\lim_{x \rightarrow 0^-} f(x) = \lim_{x \rightarrow 0^-} 1 - \frac{1}{x} \times \ln(x^2) = -\infty$

0.25 $\lim_{x \rightarrow 0^+} f(x) = \lim_{x \rightarrow 0^+} 1 - \frac{1}{x} \times \ln(x^2) = +\infty$

0.5 $f'(x) = \frac{-2 + \ln x^2}{x^2}$

x	$-\frac{e}{2}$	0	e
$f'(x)$	$+$	0	$-$
$f(x)$	$1 + \frac{2}{e}$	1	$1 - \frac{2}{e}$

0.5 $y=1, x=0$ المتقاطعة

$(\mathbb{R}) \cap (\Delta): y=1$ (2)

0.5 $\ln x^2 = 0 \Rightarrow x^2 = 1 \Rightarrow x = \pm 1$

$(\mathbb{R}) \cap (\Delta) = \{(-1, 1), (1, 1)\}$

0.5 $f(-x) + f(x) = 2$ $w(0, 1)$ مركز تناظر

0.5 $f(x) = 0$ نقطة تقاطع $(\mathbb{R}) \cap (\Delta)$

0.5 $(\Delta'): y = f'(x_0)(x - x_0) + f(x_0)$ (5)

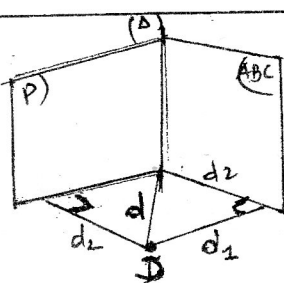
0.5 $1 = f'(x_0)(x - x_0) + f(x_0)$ $A(0, 1) \in (\Delta')$
 $-2 \ln(x_0^2) + 2 = 0 \Rightarrow \ln(x_0^2) = 1 \Rightarrow x_0^2 = e \Rightarrow x_0 = \pm \sqrt{e}$

0.5 $y = -\frac{1}{e}x + 1$ معادلة (Δ')

$(ABC) \cap (P) = \{(\Delta)\}$ (4)

0.5 $\begin{cases} -(-2+t) + (-7+4t) = (-7+5t) + 2 = 0 \\ 3(-2+t) - 2(-7+4t) + (-7+5t) - 1 = 0 \end{cases}$

$(P) \cap (ABC) = \{(\Delta)\}$ $(\Delta) \subset (ABC)$ و $(\Delta) \subset (P)$



0.25 $d_1 = d(D; (ABC)) = \frac{|-9.8 + 4 - 1|}{\sqrt{14}} = \sqrt{14}$

0.25 $d_2 = d(D; (P)) = \frac{|-3 + 4 - 4 + 2|}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

0.25 $d = d(D; \Delta) = \sqrt{\frac{3}{9} + 14} = \sqrt{\frac{43}{3}}$ (Pythagore)

(Δ) شعاع كوجية (3) معادله (\mathbb{R})

0.5 $(\mathbb{R}) \cap (\Delta)$ هو $\vec{u}(1, 4, 5)$ (4)

$(\mathbb{R}), x + 4y + 5z - 33 = 0$

$(P) \cap (ABC) \cap (\mathbb{R}) = (\mathbb{R}) \cap (\Delta) = \{H\}$ (6)

$\begin{cases} x + 4y + 5z - 33 = 0 \\ x = -2 + t \\ y = -7 + 4t \\ z = -7 + 5t \end{cases}$

$t = \frac{7}{3}$ و

$H(\frac{1}{3}, \frac{7}{3}, \frac{14}{3})$

المسافة بين D و (Δ)

0.25 $DH = d(D; \Delta) = \sqrt{(\frac{1}{3} + 3)^2 + (\frac{7}{3} - 4)^2 + (\frac{14}{3} - 4)^2} = \sqrt{\frac{129}{9}} = \sqrt{\frac{43}{3}}$