

$f(x) = 1 - \frac{a}{x}$ و $f(1) = 1 - \frac{a}{1} = 1 - a$

تغییر متوسط = $\frac{(1 - \frac{a}{x}) - (1 - a)}{x - 1} = \frac{-\frac{a}{x} + a}{x - 1} = \frac{\frac{a}{x}(x - 1)}{x - 1} = \frac{a}{x}$

$f(x) = 1 - ax^{-1} \Rightarrow f'(x) = a(-1)x^{-2} = -\frac{a}{x^2}$
 $\frac{a}{x^2} = \frac{a}{x} \xrightarrow{a \neq 0} \frac{1}{x^2} = \frac{1}{x} \Rightarrow \boxed{C = \sqrt{x}}$ ✓

$\forall a, x^2 - ax + 11a = x \quad / \quad y' = (x)' \Rightarrow f(x) - a = 1$

$\epsilon ax = \epsilon \rightarrow x = \frac{\epsilon}{\epsilon a} = \frac{1}{a} \rightarrow \forall a (\frac{1}{a})^2 - a(\frac{1}{a}) + 11a = \frac{1}{a}$
 $\Rightarrow \forall a (\frac{1}{a^2}) - \frac{1}{a} + 11a = \frac{1}{a} \rightarrow \frac{1}{a^2} - \frac{1}{a} + 11a = \frac{1}{a} \rightarrow 11a^2 = \frac{1}{a}$
 $\rightarrow a^3 = \frac{1}{11} = \frac{1}{\epsilon} \rightarrow a = \pm \sqrt[3]{\frac{1}{\epsilon}} \rightarrow a = \pm \frac{1}{\sqrt[3]{\epsilon}}$

$ax^2 - \frac{1}{a}x + 11a = 0 \quad \Delta = 0 \rightarrow 9 - 4(a)(11a) = 0 \rightarrow 9 - 44a^2 = 0 \rightarrow a^2 = \frac{9}{44} \rightarrow a = \pm \frac{3}{\sqrt{44}} \rightarrow a = \pm \frac{3}{2\sqrt{11}}$

$y' = 2x - 1 = 0 \rightarrow x = \pm \frac{1}{2}$

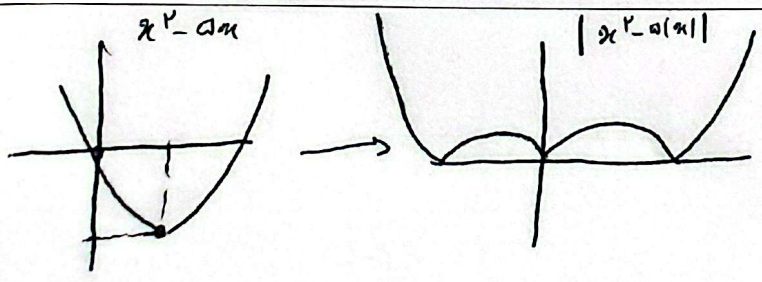
x	-1/2	1/2
y'	+	-
y	↗	↘
	11	-11

$y_{min} = -11$

$y' = 2x^2 + 2ax - 2b = 0 \rightarrow x = 0 \rightarrow 2(0)^2 + 2a(0) - 2b = 0 \rightarrow \boxed{b = 0}$

$x = -2 \rightarrow 2(-2)^2 + 2a(-2) - 2(0) = 0 \rightarrow 12 - 4a = 0 \rightarrow \boxed{a = 3}$

$y(0) = -\epsilon \rightarrow (0, -\epsilon)$
 $y(-2) = 0 \rightarrow (-2, 0)$
 $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} = \sqrt{\epsilon + 4} = \sqrt{4 + \epsilon} = 2\sqrt{1 + \frac{\epsilon}{4}}$



$m = 2$
 $n = 3$
 $\frac{n}{m} = \frac{3}{2}$

