

$$\frac{y-a}{x} = \frac{1+a}{2} = \frac{2x}{y} = \frac{a}{x} \Rightarrow x = \frac{a}{2} \Rightarrow x = \pm \sqrt{3}$$

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$2ax^2 - 2x + 11a = 0$ $\Delta = 0 \Rightarrow 4 - 4 \cdot 2a \cdot 11a = 0$

$a = \frac{1}{2}$ $x^2 - 4x + 9 \Rightarrow x = 2 \pm \sqrt{5}$
 $a = \frac{1}{2}$ $-x^2 + 2x - 9 \Rightarrow x = 1 \pm \sqrt{10}$

$\Delta = 0 \Rightarrow 4 - 4 \cdot 2a \cdot 11a = 0$ $\Rightarrow a = \frac{1}{2}$

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$f(x) = x^2 - 12x + 11$

x	-2	2
y	-1	-5
y'	2	4

$f(x) = x^2 - 12x + 11 = (x-1)(x-11)$

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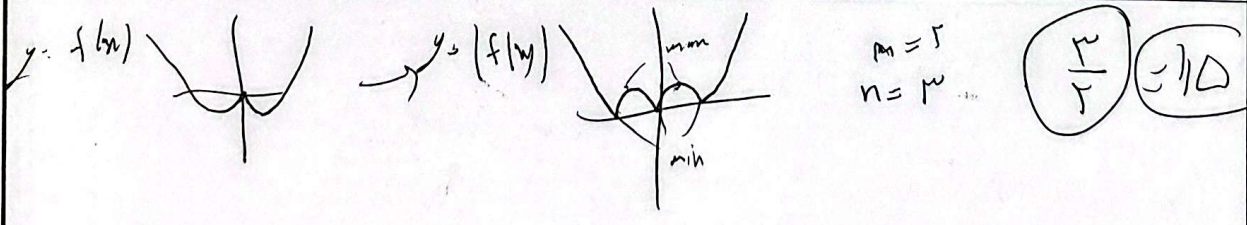
$y' = 2x^2 + 2ax - 2b$ $y = x^3 + 2x^2 - 2x$

$f(0) = -1$
 $f(-1) = -1 + 12 - 2 = 0$

$\Delta = 4 + 12 = 16 \Rightarrow \sqrt{16} = 4$

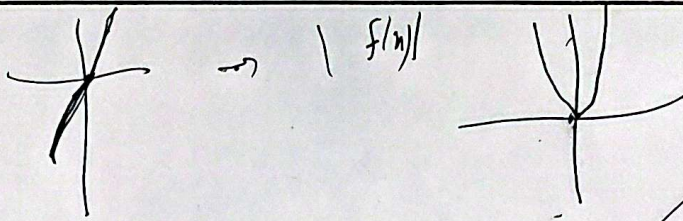
$a = 3$ $b = 0$

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$$f(x) \begin{cases} n^r + r n^{r-1} & n > 0 \\ -n^r + r n^{r-1} & n < 0 \\ -n(n-r) & n = 0 \end{cases}$$

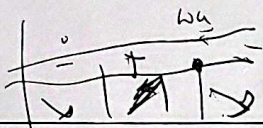


یک نقطه سبب (ریشه)

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$$f(x) = n^{\frac{1}{r}}(a-n) \quad n > a \quad n^{\frac{1}{r}} = \frac{D}{r} \Rightarrow f'(x) = \frac{1}{r} a^{-\frac{1}{r}} - \frac{D}{r} n^{-\frac{1}{r}} = \frac{1}{r} n^{-\frac{1}{r}} (ra - D)$$

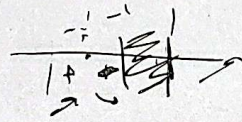
$$\frac{r a}{D} = \frac{r}{r} \Rightarrow ra = D \quad a = \frac{D}{r}$$



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$$f(x) \begin{cases} \sqrt[n]{r-x} & n > 0 \\ \sqrt[n]{n-x} & n < 0 \end{cases} \quad D: (-\infty, 0] \cup [1, \infty)$$

$$f'(x) = \frac{r-n-1}{r\sqrt[n]{r-x}} = 0 \quad n > 0 \quad n = -1$$

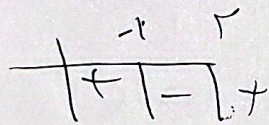


$$\frac{r}{r} = 1 \quad n = 0$$

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$$\frac{m^r - m - r}{(n - 1 + m)^r} = \frac{(m-r)(m+r)}{(n-1+m)^r}$$

-1, 0



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$$f(x) \begin{cases} \frac{x}{1-x^r} & n > 0 \\ \frac{x}{1+x^r} & n < 0 \end{cases}$$

نقطه ۱ - نقاط بحرین

$$f'(x) = \frac{1-x^r - (-r x)(x)}{(1-x^r)^2} = \frac{x^r + 1}{(1-x^r)^2} \quad n > 0$$

$$\frac{1+x^r - (r x)(x)}{(1+x^r)^2} = \frac{1-x^r}{(1+x^r)^2} \quad n < 0$$

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