

$$f(1) = 1 - a \quad f(r) = 1 - \frac{a}{r}$$

(سارا امینی، ا.ا.)

$$\frac{f(x_2) - f(x_1)}{x_2 - x_1} = \frac{(1 - \frac{a}{r}) - (1 - a)}{r} = \frac{-\frac{a}{r} + a}{r} = \frac{ra}{r^2} = \frac{a}{r}$$

آنگاه متوسط تغییر

(1)

$$f(x) = 1 - \frac{a}{x} \quad f(x) = 1 - ax^{-1} \Rightarrow f(x) = ax^{-r} \Rightarrow f'(x) = \frac{a}{x^r}$$

$$f'(c) = \frac{a}{r}$$

$$\frac{a}{c^r} = \frac{a}{r} \Rightarrow \frac{1}{c^r} = \frac{1}{r} \Rightarrow c = \sqrt[r]{r} \quad [1, r]$$

نقطه شیب
قبل از

$$y = 2ax^r - \omega x + 11a$$

$$y = x \rightarrow m = 1$$

(2)

$$y' = 2ax - \omega = 1$$

$$x = \frac{r}{2a}$$

$$x = 2ax^r - \omega x + 11a \Rightarrow 2ax^r - 4x + 11a = 0$$

$$\Rightarrow \Delta = (-4)^2 - 4(2a)(11a) = 16 - 88a^2$$

$$16 = 88a^2 \rightarrow a = \pm \frac{1}{r}$$

$$a = -\frac{1}{r} \quad x = \frac{r}{2(-\frac{1}{r})} = -r \quad (-r, -r) \quad \checkmark$$

$$a = \frac{1}{r} \rightarrow (r, r) \quad \times$$

$$y = x^r - 12x + r$$

$$y = x^r - 12x + r \rightarrow y' = rx^{r-1} - 12 = 0 \rightarrow x^r = \frac{12}{r} \rightarrow x = \pm \sqrt[r]{\frac{12}{r}}$$

(3)

	-r	r
y'	+	-
y	max	min

$$\Rightarrow \min \quad (r)^r - 12(r) + r = -12$$

$$y = x^r + ax^r - rbx - \varepsilon \rightarrow y' = rx^{r-1} + 2ax - rb = 0 \rightarrow rx^r + 4x$$

$$y(0) = 0 \rightarrow -rb = 0 \rightarrow b = 0$$

$$y'(-r) = 0 \rightarrow r(\varepsilon) + 2a(-r) = 0 \rightarrow a = r$$

$$rx(x+r)$$

$$|0 - (-r)| = r$$

(4)

$$f(x) = x^r - \omega|x|$$

max b to

min b to

$$x > 0 \rightarrow x^r - \omega x \rightarrow f' = rx - \omega = 0 \rightarrow x = \frac{\omega}{r} \quad \min$$

$$x < 0 \rightarrow x^r + \omega x \rightarrow f' = rx + \omega = 0 \rightarrow x = -\frac{\omega}{r} \quad \min$$

(5)

$$\frac{n}{m} = \frac{1}{r} \quad \checkmark$$

در $x=0$ نقطه پیوسته است

$$y = |f(x)| \quad f(x) = x(|x| + r)$$

$$x > 0 \quad x(x+r) = x^2 + rx \rightarrow rx + r = 0 \rightarrow x = -\frac{r}{r} = -1$$

$$x < 0 \quad x(-x+r) = -x^2 + rx \rightarrow y' = 2x - r = 0 \rightarrow x = \frac{r}{2}$$

برای $x=0$ در نقطه پیوسته

نقطه پیوسته

$$f(x) = \sqrt[r]{x^r} |x-a|$$

(سارا امین، ارد)

$$|x-a| = a-x$$

$$\sqrt[r]{x^r} = x^{\frac{r}{r}} \quad f(x) = x^{\frac{r}{r}} (a-x) \Rightarrow f' = \frac{r}{r} x^{-\frac{1}{r}} (a-x) - x^{\frac{r}{r}}$$

(7)

$$f' = x^{-\frac{1}{r}} \left(\frac{r}{r} (a-x) - x \right) = \frac{ra}{r} - \frac{r}{r} x - \frac{x}{r} = \frac{ra}{r} - \frac{2x}{r}$$

$$ra - 2x = 0 \rightarrow x = \frac{ra}{2} \rightarrow \frac{ra}{2} \left(\frac{ra}{a} \right)^{\frac{r}{r}} = \frac{r}{2} \rightarrow a = a$$

$$\sqrt{x|x|-x}$$

$$x > 0 \quad x^2 - x = x(x-1)$$

$$x < 0 \quad -x^2 - x = -x(x+1)$$

(8)

$$-1 < 1 \rightarrow \text{مستقیم نیست}$$

$$m=0 \quad n=1 \quad k=r$$

$$\xrightarrow{\text{جواب}} \frac{1}{r}$$

$$y' = \frac{m(x-1+m) - (mx+r)}{(x-1+m)^2} \rightarrow m^2 - m - r < 0 \rightarrow -r < m < r \rightarrow m=0, 1$$

۲ مقدار

(9)

$$1 - x|x| \neq 0 \rightarrow x = \pm 1 \quad \text{در دامنه نیست}$$

$$x=0 \quad \text{در این نقطه، تابع را قطع می‌کند}$$

(10)