

$$\frac{f(x) - f(1)}{x} = \frac{\frac{2a}{x}}{x} = \frac{a}{x^2}$$

$$f'(x) = \frac{a}{x^2}$$

(2)

$$\frac{a}{x^2} = \frac{a}{x^2} \xrightarrow{a \neq 0} x = \sqrt[2]{a}$$

$x = \pm \sqrt{a}$  منفی در بازه نیست

1

$$2ax^2 - dx + 11a$$

$$y = x$$

$$2ax^2 - dx + 11a = x$$

$$2ax - d = 1 \rightarrow x = \frac{1}{2a}$$

$$a = \frac{1}{2}$$

$$ax^2 - 2x + 9a = 0 \rightarrow a\left(\frac{x}{2a}\right)^2 - 2\left(\frac{x}{2a}\right) + 9a = 0 \rightarrow 4a^2 = \frac{1}{4} \rightarrow a = \pm \frac{1}{4}$$

2

$$f'(x) = 2x^2 - 2 \rightarrow 2x^2 - 2 = 0 \rightarrow x = \pm 1$$

	-1	1	
y'	+ 0 -	- 0 +	
y	↗	↘	↗

min

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

(2)

3

$$f(x) = 2x^2 + 2ax - 2b$$

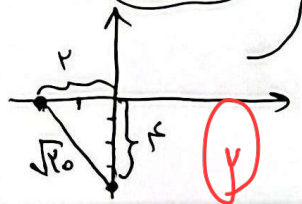
$$f'(0) = 0 \rightarrow -2b = 0 \rightarrow b = 0$$

$$f'(1) = 0 \rightarrow 2 - 2a = 0 \rightarrow a = 1$$

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

$$x = 0 \rightarrow -2 \rightarrow (0, -2)$$

$$x = -2 \rightarrow 0 \rightarrow (-2, 0)$$



(2)

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- $x > d \rightarrow x^2 - dx \rightarrow 2x - d \rightarrow \frac{d}{2} \checkmark$
- $0 < x \leq d \rightarrow -x^2 + dx \rightarrow -2x + d \rightarrow \frac{d}{2} \checkmark$
- $-d \leq x < 0 \rightarrow -x^2 - dx \rightarrow -2x - d \rightarrow -\frac{d}{2} \checkmark$
- $x < -d \rightarrow x^2 + dx \rightarrow 2x + d \rightarrow -\frac{d}{2} \checkmark$

	$\frac{d}{2}$	
y'	+ 0 -	- 0 +
y	↗	↘

max

$$m = 2$$

$$n = 2$$

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$$\frac{n}{m} = \frac{2}{2} = 1$$

(2)

$x \geq 0 \rightarrow x^2 + 2x \rightarrow 2x + 2 = 0 \rightarrow x = -\frac{2}{2} x$   
 $x < 0 \rightarrow 2x - x^2 \rightarrow 2 - 2x = 0 \rightarrow x = \frac{2}{2} x$   
 در نقطه بدانی  $x = 0$

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$x^{\frac{1}{2}} \times (a-x) \xrightarrow{y=0} \frac{1}{2} x^{-\frac{1}{2}} \times (a-x) + (-1) \times x^{\frac{1}{2}}$   
~~.....~~  $\rightarrow \frac{a-x}{2\sqrt{x}} - \sqrt{x}$   
 $\rightarrow 2(a-x) - 2x = 0 \rightarrow 2a = 4x \rightarrow x = \frac{2a}{4}$   
 $a = 2, d$

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$x \geq 0 \rightarrow \sqrt{x^2 - x}$   
 $x < 0 \rightarrow \sqrt{-x^2 - x}$   
 $D_f = [-1, 0] \cup [1, +\infty)$   
 $k=2, m=1, n=0$   
 $f'(x) = \frac{2x-1}{2\sqrt{x^2-x}} \rightarrow x = 1/2$   
 $f'(x) = \frac{-2x-1}{2\sqrt{-x^2-x}} \rightarrow x = -1/2$   
 جواب عبارت = 1

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$f'(x) = \frac{m(x-1+m) \cdot (1)(m+2)}{(x-1+m)^2} = \frac{m^2 - m - 2}{(x-1+m)^2}$   
 $1 + \lambda = 9 \rightarrow \frac{1 \pm \sqrt{9}}{2} \rightarrow -1 < m < 2 \rightarrow m = 0, 1$   
 انتگرال

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$x \geq 0 \rightarrow \frac{x}{1-x^2} \xrightarrow{y'} \frac{(1-x^2) - (2x)(x)}{(1-x^2)^2} = \frac{1-x^2}{(1-x^2)^2} = 0 \rightarrow x = \pm 1$   
 $x < 0 \rightarrow \frac{x}{1+x^2} \xrightarrow{y'} \frac{(1+x^2) - (2x)(x)}{(1+x^2)^2} = \frac{1-x^2}{(1+x^2)^2}$   
 $x = 0$

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تابع در صفحه مستقیم به این است و مشتق برابر مشتق است  
 یک نقطه بدانی