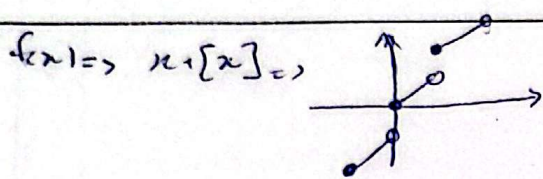


۱۹، ۵

نام و نام خانوادگی محمد کاظمی پاسخنامه تشریحی تکلیف شماره ... ۱۱ ... کلاس ۱۲A



الف) بی‌شمار نقطه (بازه) $[0, 1]$ ✓

۱، ۵

$$f(f^{-1}(x)) = x \quad \checkmark \quad \Leftrightarrow 2x - \frac{3}{2} = x$$

$$f(f^{-1}(2x - \frac{3}{2})) = 2x - \frac{3}{2} = x$$

$$x = \frac{3}{2}$$

بدون تابع f از هر عدد زوج تا عدد فرد
بعد است یعنی $\frac{3}{2} = 1.5$ غرض از این به این جهت است

$f(f(x)) \Rightarrow f^{-1}(f(x)) =$

$f(f^{-1}(x - \sqrt{2})) = x - \sqrt{2} \quad \checkmark$

۲

$$\frac{mx + 3}{x + m + 3} = x \Rightarrow \frac{mx - x^2 - xm - 3x + 3}{x + m + 3} = 0 \Rightarrow \frac{-x^2 - 3x + 3}{x + m + 3} = 0 \Rightarrow \frac{1}{a} + \frac{1}{b} = \frac{\alpha + \beta}{\alpha\beta}$$

$$\frac{3}{p} \Rightarrow \frac{-3}{-3} = \frac{1}{3} \quad \checkmark$$

۳

$$\sqrt{(2x+5)^2} - \sqrt{(5x-2)^2} \Rightarrow |2x+5| - |5x-2| \Rightarrow 2x-5 \sqrt{5x+3} \int \frac{-3x+5}{5}$$

$$\checkmark y = \frac{-x+5}{5} \quad (\frac{f^{-1}(x)}{f(x)} \Rightarrow \text{نسبت})$$

۴

$$g(x) = 2f(2x) - 1 \quad g^{-1} \Rightarrow \frac{y+1}{2} = f(2x) \Rightarrow f^{-1}\left(\frac{y+1}{2}\right) = 2x \Rightarrow \frac{f^{-1}\left(\frac{y+1}{2}\right)}{2} = x$$

$$= af^{-1}\left(\frac{x+b}{c}\right) + d \Rightarrow d=0 / a=\frac{1}{2} / c=2 / b=1 \Rightarrow \frac{ac+d}{2b} = \frac{\frac{1}{2} \cdot 2 + 0}{2 \cdot 1} = \frac{1}{2} \Rightarrow \frac{1}{2} \quad \checkmark$$

۵

$$x + \sqrt{y} \rightarrow f(x), y \rightarrow [0, +\infty) \rightarrow f^{-1}(y) \text{ exists} \Rightarrow t^2 + \sqrt{t} = y \Rightarrow t^2 + \sqrt{t+1} - 1 = y$$

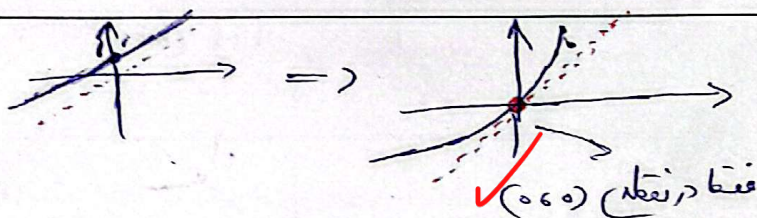
$$y = (t+1)^2 - 1 \Rightarrow y + 1 = (t+1)^2 \Rightarrow y + 1 = \sqrt{x} \Rightarrow y + 1 + 1 - \sqrt{y+1} = x \Rightarrow y + 2 - \sqrt{y+1} = x$$

$$y = x + 2 - \sqrt{y+1} \Rightarrow \sqrt{y+1} = x + 2 - y$$

~~domain~~ $[0, +\infty)$ exists ✓

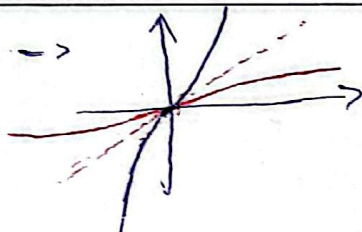
6

$$y = x - 1 + \sqrt{x} \Rightarrow x + \sqrt{x}$$



7

$$y = \sqrt{f(x) - x} / \text{or } f(x) = x^2 + \sqrt{x} \Rightarrow$$



$$\sqrt{f(x) - x}$$

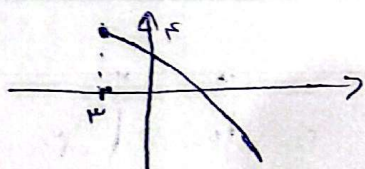
$$f^{-1}(x) \geq x$$

$$x \in (-\infty, 0]$$

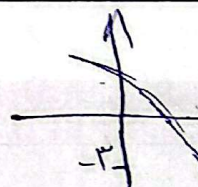
✓ یک عدد صحیح نامفی $\frac{1}{2}$

8

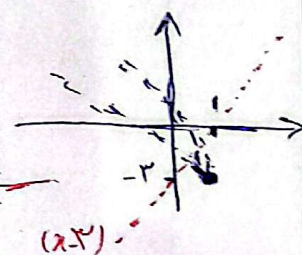
$$f(x) \Rightarrow$$



Concave



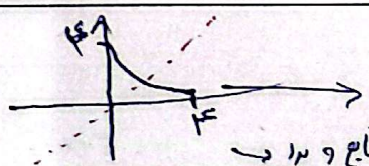
کاملاً منفی



✓ ابرفور

9

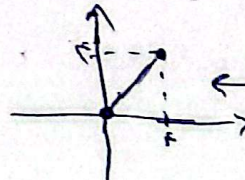
$$\sqrt{x} + \sqrt{y} = 2$$



$$\Rightarrow f = f^{-1} \Rightarrow f \circ f(x)$$

$[0, 4]$ and $[0, 4]$

$$x (= f \circ f^{-1}(x))$$



✓

10