۱۸٫۲۵ نکات جعفری

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① الف) $h^2 - h = 2 \Rightarrow h^2 - h - 2 = 0 \Rightarrow (h-2)(h+1) = 0$

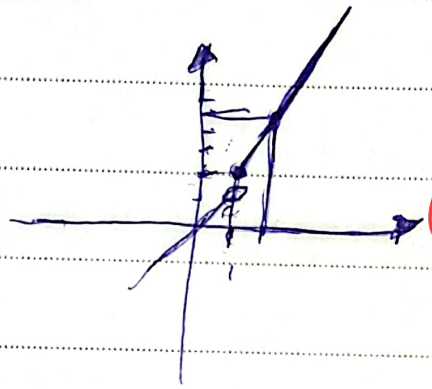
$h = -1$ ✗ غ ق ق

$h = 2$ ✓ (۲)

ب) $m = 2 \Rightarrow m - 1 = 2 - 1 = 1$ ✓

$\Rightarrow \boxed{h = 2}$

ج)

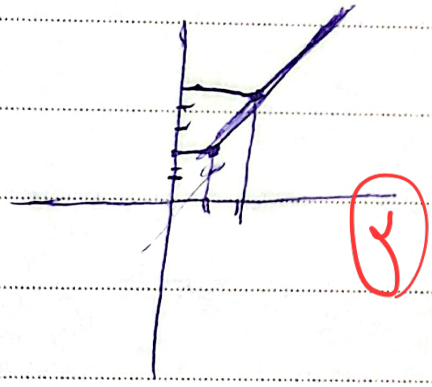


(۱٫۷۵)

$1 + a < 2 \Rightarrow a < 1$ ✓

$a \in (-\infty, 1]$

د)

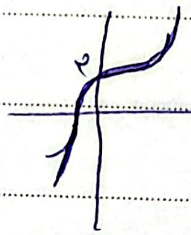


(۲)

$a > 0$ ، $a - 1 < 2 \Rightarrow a < 3$

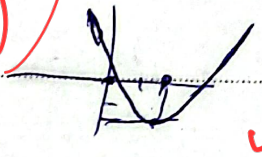
$\Rightarrow a \in [0, 3)$ ✓

④ الف) $y = x^3 + 2 \Rightarrow$



$\Rightarrow y^{-1} = \sqrt[3]{x - 2}$ ✓ (۲)

ب) $y = x^2 - 4x + 4 - 2 = (x-2)^2 - 2$



$\Rightarrow$ یک به یک نیست ✓

⑤ الف) $y = \frac{3x+1}{x-2} \Rightarrow$ همو گرافیک است و یک به یک است

$\frac{2y+1}{y-3} = x \Rightarrow y^{-1} = \frac{3x+1}{x-3}$ ✓ (۲)

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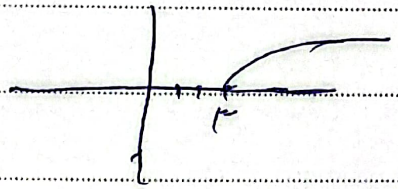
ب) $y \in [2, +\infty)$ ⇒ تابع یک به یک است ✓

ج) $y = \sqrt{x-2}$ ⇒ یک به یک است



$y^{-1} = x^2 + 2$ ✗ ⇒ $x \in [0, +\infty)$

۲) ب) $y = x^2 - 4x + 3, x \in [2, +\infty)$

$\frac{-b}{2a} = \frac{4}{2} = 2$ ⇒ در این بازه یک به یک است

$y = x^2 - 4x + 4 - 1 = (x-2)^2 - 1 \Rightarrow \sqrt{y+1} + 2 = x$

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

۷) $y = x + \sqrt{x} = \left(\sqrt{x}\right)^2 + \sqrt{x} + \frac{1}{4} - \frac{1}{4}$ (۱/۲۵)

$= \left(\sqrt{x} + \frac{1}{2}\right)^2 - \frac{1}{4} \Rightarrow y^{-1} = \sqrt{x + \frac{1}{4}} - \frac{1}{2}$

$a + 2b + 4c = 1$

$a = 0, b = +\frac{1}{2}, c = \frac{-1}{4}$ / $-1 - 1 = -2$

۸)

$\left(\frac{x_1}{\sqrt{x_1^2 - 4}} = \frac{x_2}{\sqrt{x_2^2 - 4}}\right)^2 \Rightarrow \frac{x_1^2}{x_1^2 - 4} = \frac{x_2^2}{x_2^2 - 4}$

$x_1^2 x_2^2 - 4x_1^2 = x_1^2 x_2^2 - 4x_2^2 \Rightarrow x_1^2 = x_2^2$

$x_1 = \pm x_2$ ✓ ← ک صحیح قابل قبول

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$\frac{x}{\sqrt{x^2-2}} = y \Rightarrow \frac{x^2}{x^2-2} = y^2$ (۲)

$\frac{2y^2}{y^2-1} = x^2 \Rightarrow y^{-1} = \pm\sqrt{\frac{2x^2}{x^2-1}}$ ✓

قابل قبول

(۹) $\sqrt{x} = \frac{-2}{5} + 1 \Rightarrow \sqrt{x} = \frac{3}{5} \Rightarrow x = \frac{9}{25}$ (۱)

$\Rightarrow g^{-1}(\frac{-2}{5}) = \frac{9}{25}$ ✓

$\frac{x}{1+|x|} = -\frac{2}{5} \Rightarrow -5x = 2+|x| \Rightarrow -5x-|x| = 2$

$x<0 \quad -6x = 2 \Rightarrow x = \frac{-1}{3}$ قابل قبول

$x>0 \quad -4x = 2 \Rightarrow x = \frac{-1}{2}$

$f(-\frac{2}{5}) = a$

$f^{-1}(a) = -\frac{2}{5} \rightarrow a = -\frac{2}{3}$

$\frac{9}{25} + \frac{-1}{2} = \frac{18-25}{50} = \frac{-7}{50}$

$\frac{-2}{3} + \frac{9}{25} = \frac{-33}{75}$

۱۰) $f(x) = x^3+1 \Rightarrow g(x) = x^{\frac{3}{2}} + 1 + \sqrt{x^2+1}$ (۲)

$11 = x^3+1+\sqrt{x^2+1} = 8+\sqrt{9} = 11 \Rightarrow x = 2$ ✓

$8+3$

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