

$$f(x) = x + [x]$$

$$[0.1] \Rightarrow f(x) \Rightarrow y = x$$

بی‌عی

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

$$2x - \frac{3}{2} = x \Rightarrow 2x - x = \frac{3}{2} \Rightarrow \boxed{x = \frac{3}{2}}$$

$$y = \frac{ax+b}{cx+d}$$

$$\Rightarrow \text{میانجی} = -\frac{b}{c}$$

$$\Rightarrow \frac{a}{c} = \frac{a}{c} \quad \frac{a}{c} = -\frac{b}{d} \Rightarrow a = -b$$

$$-b^2 \neq 12$$

$$y = \frac{mx+r}{x+m+r} \Rightarrow xy + my + ry = mx + r \Rightarrow xy - mx = r - my - ry$$

$$\frac{1}{x} + \frac{1}{y} = \frac{1}{r} + \frac{1}{r}$$

$$x(y-m) = -ry - m + r$$

$$x = \frac{-ry - m + r}{y - m} \Rightarrow y = \frac{-rx - m + r}{x - m} = f^{-1}\left(\frac{x}{r}\right)$$

$$\frac{mx+r}{x+m+r} = \frac{-rx-m+r}{x-m}$$

$$\frac{r}{-r+\sqrt{12}} + \frac{r}{-r-\sqrt{12}} = \boxed{1.6}$$

$$\frac{mx+r}{x+m+r} = x \Rightarrow x^2 + mx + rx = mx + r \Rightarrow x^2 + rx - r = 0 \Rightarrow \Delta = 9 - 4(1)(-3) = 12$$

$$\frac{-r+\sqrt{12}}{r} = x \quad \frac{-r-\sqrt{12}}{r} = x$$

$$\Rightarrow 2x + 5 \leq 5x - 4 \Rightarrow \sqrt{2x} \Rightarrow \sqrt{5x} \Rightarrow \sqrt{2x} \leq \sqrt{5x}$$

$$f(x) = \sqrt{(x+5)^2} - \sqrt{(5x-4)^2}$$

$$y = 2x + 5 - 5x + 4 \Rightarrow -3x + 9 = y \Rightarrow 9 - y = 3x \Rightarrow \frac{9-y}{3} = x \Rightarrow \boxed{\frac{9-y}{3} = x}$$

فرد غازی

$$f(x) = x + 2\sqrt{x}$$

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

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

$$x + 2 - 2\sqrt{x+1} = y \Rightarrow x + 1 \geq 0 \Rightarrow \boxed{x \geq -1}$$

$$y = f(0) = 0 - 1 + 2 \cdot 0 = -1 + 0 = -1$$

$$y = x - 1 + 2x$$

$$\log_2 x$$

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

$$f^{-1}(x) \geq x \Rightarrow (-\infty, 0]$$

$$f(x) = x^2 + \epsilon x$$

$$x^2 + \epsilon x = x \Rightarrow x^2 + \epsilon x - x = 0$$

$$x(x^2 + \epsilon - 1)$$

$$f(0) = 0$$

$$f^{-1}(0) = 0$$

$$f(-1) = -1 \quad f^{-1}(-1) = -1$$

تابع $f(x)$ همیشه برای یک x مثبت جوابی
بزرگتر از x و برای یک x منفی جوابی
کوچکتر از آن داده می‌دهد تابع $f^{-1}(x)$ برعکس
است

$$\sqrt{x} + \sqrt{y} = 2 \Rightarrow \sqrt{y} = 2 - \sqrt{x} \Rightarrow y = 4 - 4\sqrt{x} + x$$

$$f(f(x)) \Rightarrow f = 4 - 2\sqrt{4 - 4\sqrt{x} + x} + x + 4 - 2\sqrt{x}$$

$$4 - 2\sqrt{(2 - \sqrt{x})^2} + x + 4 - 2\sqrt{x} \Rightarrow 4 - 2|2 - \sqrt{x}| + x + 4 - 2\sqrt{x}$$

$$x > 4 \Rightarrow 4 + 4\sqrt{x} + x + 4 - 2\sqrt{x} = 8 + 2\sqrt{x} + x$$

$$x \leq 4 \Rightarrow 4 - 2(2 - \sqrt{x}) + x + 4 - 2\sqrt{x} = 4 - 4 + 2\sqrt{x} + x + 4 - 2\sqrt{x} = 4 + x$$