

$$x^2 - 2 = 19 \Rightarrow x = \pm \sqrt{21}$$

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$$f(x) = y \Rightarrow k = 0 \quad \frac{x-k}{c} = y \quad \frac{2-k}{c} = 1 \quad 12 = 2-k \quad k = -10$$

$$F(1) = 21 + (-10) = 11 \quad (\text{الف})$$

$$f(f(x)) = 2(2x-10) - 10 = 4x - 40 \quad (\text{ب})$$

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$$\frac{ay}{y-1} = 0 \quad xy - x = ay \quad -x = y(a-1) \Rightarrow y = \frac{-x}{a-1}$$

$$(2a, a) \Rightarrow \frac{-2a}{a-2a} = a \quad a = 2$$

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$$\text{الف) } \{ (2, 2), (1, 1), (4, 4) \}$$

$$\text{ج) } \{ (2, 2), (4, 4), (6, 6) \}$$

$$\text{د) } \{ (2, 2), (4, 4) \}$$

$$\text{ب) } \{ (2, 2), (4, 4), (6, 6) \}$$

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$$f^{-1} = \{ (0, 2), (2, 4), (4, 6) \}$$

$$f \circ g^{-1} = \{ (2, 4), (4, 6), (6, 8) \}$$

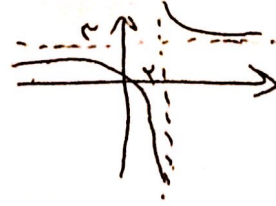
$$\frac{n}{f \circ g^{-1}} = \left\{ \left(2, \frac{1}{2} \right) \right\}$$

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$$\frac{cy+1}{y-c} = n \quad ny - cn = cy+1$$

$$-cn = cy + 1$$

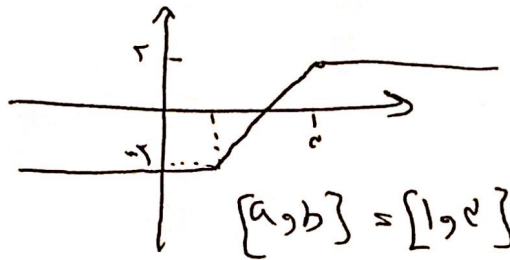
$$\frac{cn+1}{n-c} = y$$



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$$y-1 + y-c = n$$

$$\frac{x+f}{r} = y \rightarrow f(n)^{-1}$$



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$$y^c + c = n \quad \sqrt[n]{n-c} = y$$

$$fy-1 = n \quad \frac{n+1}{f} = y$$

$$\begin{cases} \sqrt[n]{n-c} & n \geq 1 \\ \frac{n+1}{f} & n \leq 0 \end{cases}$$

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$$\frac{y^r - (y^c+1)^r}{y^{r+c}} = \frac{y^r + cy^r - y^c - 1 - cy^r - cy}{y+c} = \frac{-cy-1}{y+c} = n$$

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$$-cy-1 = n(y+c) \rightarrow y(-c-n) = c(n+1) \quad y = \frac{c(n+1)}{-c-n}$$

$$f^{-1}(x) = \omega \rightarrow \frac{x-1}{-x+c}, \quad a = -c \quad d = \emptyset \quad b = -c$$

$$y(x^c+1) = x$$

$$y^c - x + y = 0$$

$$x = \frac{1 \pm \sqrt{1-4y^c}}{2}$$

$$y = \frac{1 \pm \sqrt{1-4x^c}}{2} \rightarrow f^{-1}(x)$$

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