

نارین حاتم

$$\text{If } f^{-1}(x) = \{ \} \text{ , } f(x) = 3x + k \quad - 2$$

$$f(v) \rightarrow \text{الف}$$

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

$$a \rightarrow 3 \rightarrow x$$

$$f = \{(a, 3), (v, f), (r, v), (q, q)\}$$

$$v \rightarrow f \rightarrow x$$

$$(r \rightarrow v \rightarrow f)$$

$$q \rightarrow q \rightarrow x$$

$$\Rightarrow \quad \begin{array}{l} r \rightarrow a \rightarrow f \rightarrow f^{-1} \circ f \rightarrow \{(r, r), (f, f), (v, v), (q, q)\} \\ f \rightarrow v \rightarrow f \\ v \rightarrow r \rightarrow v \\ q \rightarrow q \rightarrow q \end{array}$$

$$\text{ج) } f \circ g^{-1} \rightarrow g^{-1} \circ f \rightarrow \{(r, a), (q, a), (a, q)\}$$

$$f = \{(r, a), (f, v), (v, r), (q, q)\}$$

$$r \rightarrow 3 \rightarrow a \rightarrow f \circ g^{-1} \rightarrow \{(r, a), (a, q)\}$$

$$q \rightarrow a \rightarrow x$$

$$a \rightarrow q \rightarrow q$$

$$\Rightarrow \quad \begin{array}{l} r \rightarrow a \rightarrow q \\ f \rightarrow v \rightarrow x \\ v \rightarrow r \rightarrow r \\ q \rightarrow q \rightarrow a \end{array} \quad g^{-1} \circ f \rightarrow \{(r, q), (v, r), (q, a)\}$$

$$v \rightarrow r \rightarrow r$$

$$q \rightarrow q \rightarrow a$$