

1) Ans = (D) 65

$f(x) = 2x + 4$, $g(x) = 4x^2 + 1$; find $(g \circ f)(x)$

$g(f(x)) = 4(2x+4)^2 + 1$

$= 0 + 4$

$g = 4$

$g(4) = 4(4)^2 + 1$

$g(16) = 64 + 1 = 65$

$(g \circ f)(x) = 65$

2) Ans = (B) $-20x + 54$

find $(g \circ f)(x)$

$(g \circ f)(x) = g(-4x+9)$

$= 5(-4x+9) + 9$

$= -20x + 45 + 9$

$= -20x + 54$

$(g \circ f)(x) = -20x + 54$

3) $f(x) = \sqrt{x+8}$, $g(x) = 8x-12$; find $(f \circ g)(x)$

$(f \circ g)(x) = f(g(x))$

$= \sqrt{8x-12}$

$= \sqrt{8x-12}$

$= \sqrt{4(2x-3)}$

$= 2\sqrt{2x-3}$

$(f \circ g)(x) = 2\sqrt{2x-3}$

Ans = (B) $2\sqrt{2x-3}$

4) $f(x) = \frac{2}{x-8}$, $g(x) = \frac{5}{8x}$ Find $(f \circ g)(x)$

$$f(g(x)) = f\left(\frac{5}{8x}\right)$$

$$= \frac{2}{\frac{5}{8x} - 8}$$

$$= \frac{2}{\frac{5 - 64x}{8x}}$$

$$= \frac{2 \cdot 8x}{5 - 64x}$$

$$= \frac{16x}{5 - 64x}$$

Ans

A

$$\frac{16x}{5 - 64x}$$

5) $f(x) = \frac{10}{x+6}$

$g(x) = \frac{x+10}{x+6}$

Find $(f \circ g)(x)$

$$f\left(\frac{x+10}{x+6}\right) = \frac{10}{\frac{x+10}{x+6} + 6}$$

$$= \frac{10}{\frac{x+10+6(x+6)}{x+6}}$$

$$= \frac{10(x+6)}{x+10+6x+36}$$

$$= \frac{10(x+6)}{7x+46}$$

$$f(x) = \frac{10}{x+6} \neq -16$$

Ans = **D**

$$6) \{ \langle -15, 1 \rangle, \langle -19, -8 \rangle, \langle 3, 15 \rangle \}$$

$$\text{Ans} = \boxed{A} \text{ yes}$$

$$7) \{ \langle -3, 4 \rangle, \langle -1, 5 \rangle, \langle 0, 2 \rangle, \langle 2, 6 \rangle, \langle 5, 7 \rangle \}$$

$$\text{Inverse} \left\{ \begin{array}{l} 4, -3 \\ 5, -1 \\ 2, 0 \\ 6, 2 \\ 7, 5 \end{array} \right\}$$

$$\text{Domain} = \{ 4, 5, 2, 6, 7 \}$$

$$\text{Range} = \{ -3, -1, 0, 2, 5 \}$$

$$8) f(x) = x^3 + 4$$

$$y = x^3 + 4$$

cancel like term

$$x = y^3 + 4$$

$$x - 4 = y^3$$

$$f^{-1}(x) = \sqrt[3]{x-4}$$

$$9) f(x) = \frac{6}{x+4}$$

$$y = \frac{6}{x+4}$$

$$6 = (y+4)x$$

$$6 = xy + 4x$$

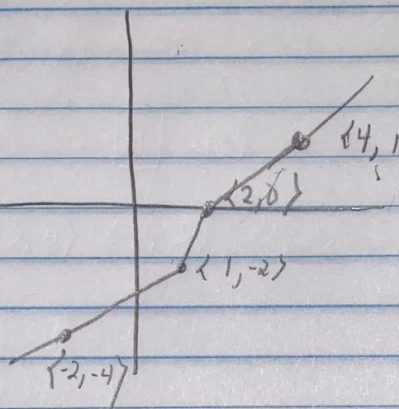
$$-xy = 4x - 6$$

$$y = -4x - \frac{6}{x}$$

$$f^{-1}(x) = \frac{6-4x}{x}$$

Answer:-

(10)



$$\left\{ \begin{array}{l} 4, 1 \\ -2, 0 \\ 1, -2 \\ -2, -4 \end{array} \right\}$$