

Algebra 3 Assignment # 2

Inverse Functions

(1) Find $f^{-1}(x)$ for each of the following please.

(a) $f(x) = 5x + 3$

(e) $f(x) = \sqrt{5x - 7}$

(b) $f(x) = \frac{4}{x}$

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

(c) $f(x) = \frac{3x + 2}{5x - 2}$

(g) $f(x) = \sqrt[3]{4x + 5}$

(d) $f(x) = \frac{7x + 2}{2x - 7}$

(h) $f(x) = -\sqrt[3]{5x + 8} - 2$

(2) $f(x) = \frac{6x + 5}{2x + 3}$, $g(f(x)) = x$. Find $g(x)$.

(3) $f(x) = \sqrt{x - 2}$. Find $f^{-1}(x)$, and sketch a graph of $f(x)$ and $f^{-1}(x)$ on the same set of axes.

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Answers

$$(1) \quad (a) \quad f^{-1}(x) = \frac{x-3}{5}$$

$$(e) \quad f^{-1}(x) = \frac{x^2 + 7}{5}$$

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

$$(f) \quad f^{-1}(x) = \frac{x^2 - 4x - 1}{4}$$

$$(c) \quad f^{-1}(x) = \frac{2x+2}{5x-3}$$

$$(g) \quad f^{-1}(x) = \frac{x^3 - 5}{4}$$

$$(d) \quad f^{-1}(x) = \frac{7x+2}{2x-7}$$

$$(h) \quad f^{-1}(x) = -\frac{(x+2)^3 + 8}{5}$$

$$(2) \quad g(x) = \frac{-3x+5}{2x-6}$$