Algebra 3 Assignment # 3
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) $f(x) = \dfrac{4}{x}$

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

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

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

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

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

(2) $f(x) = \dfrac{6x + 5}{2x + 3}$, $g(f(x)) = x$. 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)   **(a)** $f^{-1}(x) = \dfrac{x-3}{5}$ **(e)** $f^{-1}(x) = \dfrac{x^2+7}{5}$

       (b) $f^{-1}(x) = \dfrac{4}{x}$ **(f)** $f^{-1}(x) = \dfrac{x^2-4x-1}{4}$

       (c) $f^{-1}(x) = \dfrac{2x+2}{5x-3}$ **(g)** $f^{-1}(x) = \dfrac{x^3-5}{4}$

       (d) $f^{-1}(x) = \dfrac{7x+2}{2x-7}$ **(h)** $f^{-1}(x) = -\dfrac{(x+2)^3+8}{5}$

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