

Inverse of a function

Pre-Calc RH

From SAT subject,

9. If $f(x) = 2x + 1$ and $g(x) = \frac{1}{x} - 2$, for what value of x is $g(f(x))$ equal to 0?

(A) -1

(B) $-\frac{1}{4}$

(C) $\frac{1}{4}$

(D) $\frac{1}{2}$

(E) $\frac{2}{3}$

10. If $f(g(x)) = \frac{2\sqrt{x^2 + 1} - 1}{\sqrt{x^2 + 1} + 1}$ and $f(x) = \frac{2x - 1}{x + 1}$,

then $g(x) =$

(A) \sqrt{x}

(B) $\sqrt{x^2 + 1}$

(C) x

(D) x^2

(E) $x^2 + 1$

14. If $f(x) = 3x + 5$ and $f(g(1)) = 11$, which of the following could be $g(x)$?

(A) $7x - 5$

(B) $5x + 7$

(C) $5x - 7$

(D) $5x + 3$

(E) $-5x + 3$

33. If $f(x) = \log_2 x$ for $x > 0$, then $f^{-1}(x) =$

(A) 2^x

(B) x^2

(C) $\frac{x}{2}$

(D) $\frac{2}{x}$

(E) $\log_x 2$

38. If $f(x) = 5\sqrt{2x}$, what is the value of $f^{-1}(10)$?

(A) 0.04

(B) 0.89

(C) 2.00

(D) 2.23

(E) 22.36

39. If $\arccos(\cos x) = 0$ and $0 \leq x \leq \frac{\pi}{2}$, then x could equal

(A) 0

(B) $\frac{\pi}{6}$

(C) $\frac{\pi}{4}$

(D) $\frac{\pi}{3}$

(E) $\frac{\pi}{2}$

From competitions,

110. Given $g(x) = 2x + 8$ and $f(x) = \frac{1}{x+2}$, find $g \circ f^{-1}(-2)$. (MAӨ 1990)

115. If $g(x) = 1 - x^2$ and $f(g(x)) = \frac{1-x^2}{x^2}$ when $x \neq 0$, then find $f(1/2)$. (AHSME 1974)

118. If $f\left(\frac{x}{x-1}\right) = \frac{1}{x}$ for all $x \neq 0, 1$ and $0 < \theta < \frac{\pi}{2}$, then find $f(\sec^2 \theta)$. (AHSME 1991)