March 23, 2016

$f(x) = \sqrt{2x-1}$

① Find Inverse

② Do Both Checks

Mar 23-10:58 AM

$f(x) = \sqrt{2x-1}$

① Is f one-to-one? yes!

②
$$y = \sqrt{2x-1}$$
$$(x)^2 = \left(\sqrt{2y-1}\right)^2$$
$$x^2 = 2y-1$$
$$x^2+1 = 2y$$
$$\frac{x^2+1}{2} = y$$
$$f^{-1}(x) = \frac{x^2+1}{2}$$

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$f(x) = \sqrt{2x-1}$ & $f^{-1}(x) = \frac{x^2+1}{2}$

① $(f \circ f^{-1})(x) = \sqrt{2\left(\frac{x^2+1}{2}\right)-1}$

$= \sqrt{x^2+1-1}$

$= \sqrt{x^2}$

$= x$

② $(f^{-1} \circ f)(x) = \frac{\left(\sqrt{2x-1}\right)^2 + 1}{2}$

$= \frac{2x-1+1}{2}$

$= \frac{2x}{2}$

$= x$

Mar 23-11:17 AM

$f(x) = \frac{x}{1-3x}$ LCD: $1-3y$

$y = \frac{x}{1-3x}$

$(1-3y)\,x = \frac{y}{1-3y}\,(1-3y)$ solve for y

$(1-3y)\,x = y$

$x - 3xy = y$

$+3xy$

$x = y + 3xy$

$\frac{x}{1+3x} = \frac{y(1+3x)}{(1+3x)}$

$\frac{x}{1+3x} = y$

$f^{-1}(x) = \frac{x}{1+3x}$

Mar 23-11:26 AM

For Friday (3/25)

① find Inverse

② Do Both Checks

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Math 1111 Text!

Mar 23-11:53 AM