






MAC1140 SEC29 HW 09-17-2007 4.1

Mr. Fei Hua (fhua@math.fsu.edu)

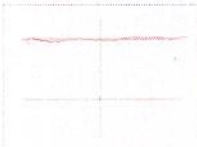
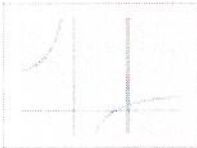


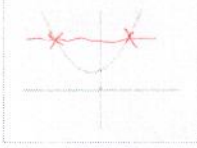
Due: 09-19-2007

Full Name: Fei Hua. Sec#: _____ Extra Credit Attempted? _____

1. [4.1.1aMSPT] Select the formulas of ALL one-to-one functions

- $f(x) = -2x + 1$ 
- $f(x) = \frac{x+1}{x+2}$ 
- $f(x) = -2x^2 + x + 1$ 
- $f(x) = -2x^3 + 1$ 
- $f(x) = -4$ 

2. [4.1.1bMSPT] Select the graphs of ALL one-to-one functions

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- 
- 
-  ← not a func
- 

3.

[4.1.2aPT] Choose the formula for the inverse of the function $f(x) = \frac{-2x-2}{2x+1}$.

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

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

Solve for x

$$(2x+1)y = -2x-2$$

$$2yx + y = -2x - 2$$

$$2yx + 2x = -y - 2$$

$$x(2y+2) = -y-2$$

$$x = \frac{-y-2}{2y+2} \quad x \leftrightarrow y \rightarrow y = \frac{-x-2}{2x+2}$$

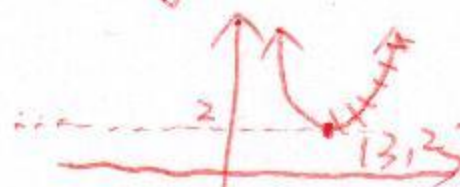
2.

[4.1.2bPT] If $f(x) = a(x-3)^2 + 2$ on $(-\infty, 3)$ and $a > 0$, then the inverse function is *means domain of f^{-1}*

- $f^{-1}(x) = \sqrt{\frac{x-2}{a}} + 3$ on $(-\infty, 3)$
- $f^{-1}(x) = \frac{1}{a(x-3)^2+2}$ on $(-\infty, 3)$
- $f^{-1}(x) = -\sqrt{\frac{x-2}{a}} + 3$ on $(-\infty, 3)$
- $f^{-1}(x) = \sqrt{\frac{x-2}{a}} + 3$ on $(2, \infty)$
- $f^{-1}(x) = -\sqrt{\frac{x-2}{a}} + 3$ on $(2, \infty)$

Domain of original: $(-\infty, 3)$

Vertex of $f(x)$: $(3, 2)$



So the Range of original: $(2, +\infty)$

We know the inverse $f^{-1}(x)$ should take $(2, +\infty)$ as its Domain and $(-\infty, 3)$ as its Range. Now we solve for the

3.

[4.1.2cPT] If $f(x) = 4x - 2$ on $[-2, 2]$, then the inverse function is *means domain of f^{-1}*

- $f^{-1}(x) = \frac{1}{4}x + \frac{1}{2}$ on $[-10, 6]$
- $f^{-1}(x) = \frac{1}{4}x + \frac{1}{2}$ on $[-2, 2]$
- $f^{-1}(x) = \frac{1}{4x-2}$ on $[-10, 6]$
- $f^{-1}(x) = \frac{1}{4x-2}$ on $[-2, 2]$
- None of these

ATTN!

$$y = a(x-3)^2 + 2$$

$$y-2 = a(x-3)^2$$

$$\frac{y-2}{a} = (x-3)^2$$

$$\pm \sqrt{\frac{y-2}{a}} = x-3$$

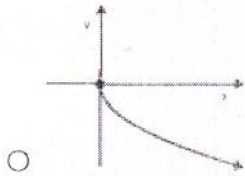
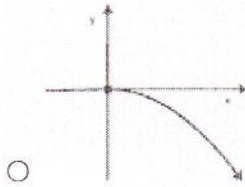
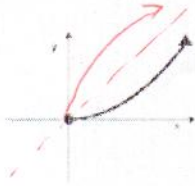
$$x = \pm \sqrt{\frac{y-2}{a}} + 3$$

$$y = \pm \sqrt{\frac{x-2}{a}} + 3$$

$$y = -\sqrt{\frac{x-2}{a}} + 3, \text{ on } (2, +\infty)$$

We take the - sign b/c R of f^{-1} is $(-\infty, 3)$

[4.1.3aPT] Select the graph of the inverse of the function shown below



This function has no inverse

