Even HW answers

72. $f^{-1}(x)=4(x-7)$
74. $f^{-1}(x)=(x+5)^3$
76. $f^{-1}(x)=x^{-1}$

INVERSE FUNCTIONS!

HORIZONTAL LINE TEST: if a function passes the test, then the inverse is also a function!

Terminology: A function whose inverse is also a function is called "one - to - one"

[in other words, a function which passes the horizontal line test is "one to one"]

If f is a one-to-one function,

then we write the inverse function f^{-1}

The -1 in f^{-1} is not an exponent

THEOREM:

$f^{-1}(f(x)) =$

$f(f^{-1}(x)) =$

$f(x) = 2x^3 + 1$

$f^{-1}(x) = \sqrt[3]{\frac{x-1}{2}}$

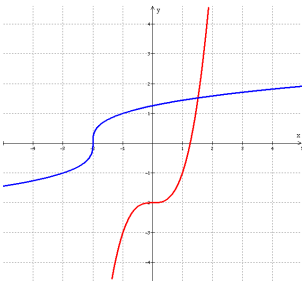
$f(x) = 2x^3 + 1$

(1) cube
(2) multiply by 2
(3) add 1

$f^{-1}(x) = \sqrt[3]{\frac{x-1}{2}}$

(1) subtract 1
(2) divide by 2
(3) cube root

$f(x)=x^3-2$
$f^{-1}(x)=\sqrt[3]{(x+2)}$



$f(f^{-1}(2))=$
$f^{-1}(f(0.5))=$
$f(f^{-1}(-2))=$
$f^{-1}(f(-2))=$

By the end of class you should be able to:

1. define an exponential function
2. evaluate exponential functions
3. understand how exponential functions look and translate graphically

GROUP WORK!
GROUP WORK!
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GROUP WORK!
GROUP WORK!
GROUP WORK!
GROUP WORK!
GROUP WORK!
GROUP WORK!

Let's come back together
and discuss our findings!

So what do you think the maximum number
of times a piece of paper can be folded?

What about something thinner than paper -- like foil?

In January 2002, **while a junior in high school**, Gallivan demonstrated that a single piece of toilet paper, 4000 ft (1200 m) in length, can be folded in half twelve times.

The previous limit to folding any piece of paper in half had **long been believed to be only eight times.**

She also folded a single square sheet of gold foil in half twelve times. Not only did she provide the empirical proof, but she also derived an equation that yielded the width of paper, W, needed in order to fold a piece of paper of thickness t any n number of times.

Gallivan's story was mentioned in the episode Identity Crisis [1] of Numb3rs on CBS in 2005 and on an episode of MythBusters [2] on The Discovery Channel in 2007.

In May 2007 Britney Gallivan graduated from UC Berkeley with a degree in Environmental Science from the College of Natural Resources.

[wikipedia: http://en.wikipedia.org/wiki/Britney_Gallivan]