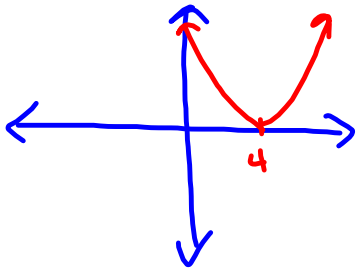
Get out a piece of paper and write down everything you remember about functions and their inverses.

*Also get out your 6.1 packet, we'll go over any questions you have on that too!

Inverse Functions

- Solve for a function's inverse: (1) switch x & y; (2) solve for y.
- domain & range switch
  → (x,y) → (y,x)
  (2,3) → (3,2)
- A quadratic functions inverse is not a function unless we restrict the domain.



domain: $x \leq 4$ or $x \geq 4$

- A function & its inverse are reflections across $y = x$

Hang onto:

- Chapter summaries from textbook
- Module 4, 1, 2, 6.1

Other important items:

SAGE Mon 4/25 & Wed 4/27

Apr 5-11:12 AM

Go Topic: Trigonometric Ratios

Find the other two trig ratios based on the one that is given.

9. $\sin\theta = \frac{4}{5}$	$\cos\theta =$	$\tan\theta =$
10. $\sin\theta =$	$\cos\theta = \frac{5}{13}$	$\tan\theta =$
11. $\sin\theta =$	$\cos\theta =$	$\tan\theta = 1$
12. $\sin\theta = \frac{1}{2}$	$\cos\theta =$	$\tan\theta =$
13. $\sin\theta =$	$\cos\theta = \frac{9}{41}$	$\tan\theta =$
14. $\sin\theta =$	$\cos\theta =$	$\tan\theta = \sqrt{3}$

Opp / Hyp

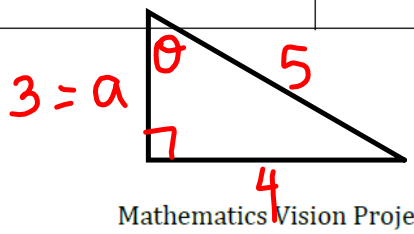
$\theta = 53.1°$

$\cos 53.1 = 0.6$

$\tan 53.1 = 1.3$

$\sin^{-1}(\sin\theta) = \sin^{-1}(\frac{4}{5})$

$\theta = 53.1°$



$a^2 + 4^2 = 5^2$

$a^2 + 16 = 25$

$-16 \quad -16$

$\sqrt{a^2} = \sqrt{9}$

$a = \pm 3$

$a = 3$

$\cos\theta = \frac{3}{5}$

$\tan\theta = \frac{4}{3}$

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8.50 x 11.00 in

How do you find the inverse of a function algebraically?

Find the inverse of each function.

$g(x) = \frac{2}{3}x + 2$

$f(x) = (x+2)^5 + 1$

$g(x) = \frac{3}{-x-1}$

$y = -10\log_4 x$

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

$y = 6^x + 5$

Apr 5-8:14 AM

Given two functions, how can you tell if they're inverses of one another?

$f(g(x)) = x$

$g(f(x)) = x$

State if the given functions are inverses.

$$g(x) = \sqrt[5]{-x-1}$$

$$f(x) = -x^5 - 1$$

$f(g(x)) = f\left(\sqrt[5]{-x-1}\right) =$

$-\left(\sqrt[5]{-x-1}\right)^5 - 1 =$

$-(-x-1) - 1 =$

$x + 1 - 1 = x$

$g(f(x)) = g(-x^5-1) =$

$\sqrt[5]{-(-x^5-1)-1} =$

$\sqrt[5]{x^5 + 1 - 1} =$

$\sqrt[5]{x^5} = x$

Yes, inverses.

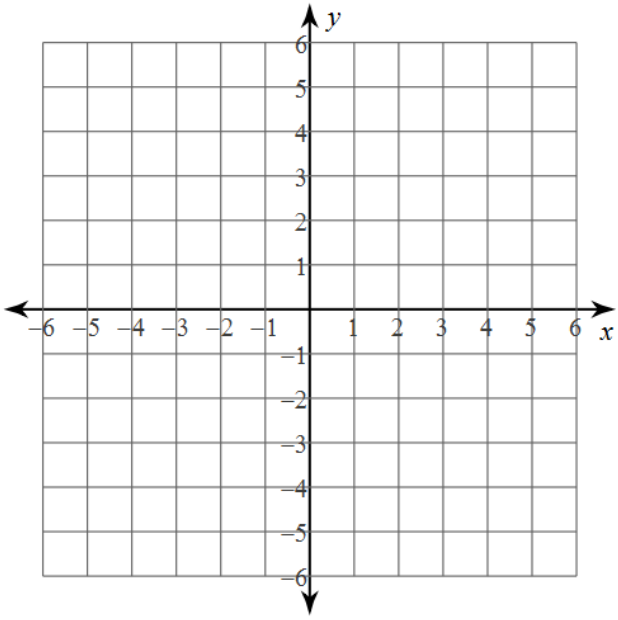
$$h(x) = -\frac{3}{x+3} - 2$$

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

What are some important features of graphing a function and its inverse?

Find the inverse of each function. Then graph the function and its inverse. Graph the line y=x with a dotted line.

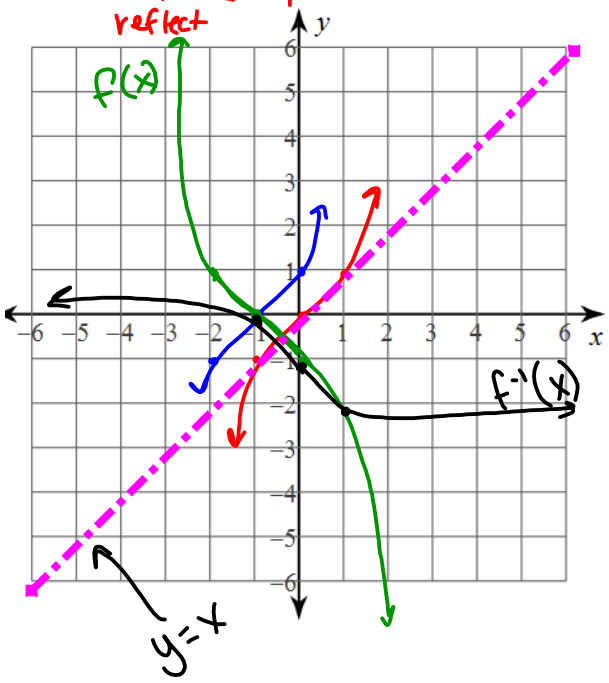
$$g(n) = \frac{1}{4}n - \frac{1}{4}$$



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

reflect

1



$x = -(y+1)^3$

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

$\sqrt[3]{-x} = y+1$

$-1 \quad -1$

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

reflect across x-axis

↓1

Homework

Finish Inverse Functions Review WKS

Apr 5-8:24 AM