Square Root of a Function (2.2)

p86 day 3

Quiz 2

1. What is the inverse of $f(x) = 2x + 3$

2. Draw the inverse of f(x)

3. What are the new co-ordinates of the point (-6, -3) after the transformation $y = 2f(3x)$

4. Given y=f(x), what is the equation of the transformed function?

5. Write mappings for the following two.

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

b) A horizontal reflection, a vertical stretch of 2, a horizontal translation 1 to the right, and a vertical translation of 3 down.

6. Write the following functions after the given transformation.

a) a vertical stretch of 4 applied to $y = x^2$

b) a horizontal reflection applied to $y = \sqrt{x}$

c) a horizontal translation of 4 right applied to $y = \frac{1}{x}$

7. Describe these transformations. Use numbers where appropriate.

a) $y = -(3(x+4))^2 - 1$

b) $f(x) = 2\sqrt{x-4}+5$

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11. Write the equation of a radical function with each domain and range.

a) $\{x \mid x \geq 6, x \in R\}, \{y \mid y \geq 1, y \in R\}$

b) $\{x \mid x \geq -7, x \in R\}, \{y \mid y \leq -9, y \in R\}$

c) $\{x \mid x \leq 4, x \in R\}, \{y \mid y \geq -3, y \in R\}$

d) $\{x \mid x \leq -5, x \in R\}, \{y \mid y \leq 8, y \in R\}$

Mac, 19, 19. The inverse of $f(x) = \sqrt{x}$ is $f^{-1}(x) = x^2, x \geq 0$.

a) Graph both functions, and to explain why the restrict necessary on the domain o inverse function.

b) Determine the equation, ir any restrictions, of the inv of the following functions.

i) $g(x) = -\sqrt{x-5}$

ii) $h(x) = \sqrt{-x}+3$

iii) $j(x) = \sqrt{2x-7}-6$

7. a) Express the radius function of its are

b) Create a table of v to illustrate the re radical function re

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what happens when you take the square root of a function?

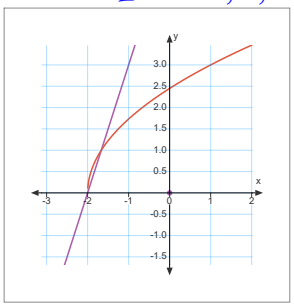
ex1: Graph

$y = 3x + 6$

and

$y = \sqrt{3x+6}$

$Y = \sqrt{3(x+2)}$



some features:

when root is above the original

Domain >0

can't we tell from transformations?

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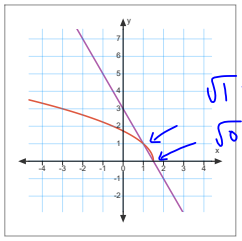
try: Sketch $y = 3 - 2x$ and $y = \sqrt{3-2x}$

$Y = \sqrt{3-2x}$

$= \sqrt{-2x+3}$

$Y = \sqrt{-2(x-\frac{3}{2})}$



$\sqrt{1} = 1$

$\sqrt{0} = 0$

$\sqrt{}$ all y coordinates

How is this a big deal? It's just transformations. Isn't it?

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ex2: Sketch $y = \sqrt{-0.5x^2 + 2}$

where's your transformations now?

invariant points $Y=0$ $Y=1$

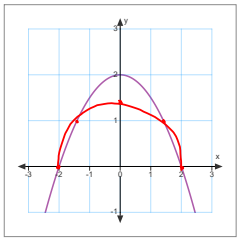
between $0<Y<1$ the $\sqrt{}$ is above

if $Y>1$ the root is below

if $Y<0$ there is no graph

isn't this the root of?

$y = -0.5x^2 + 2$



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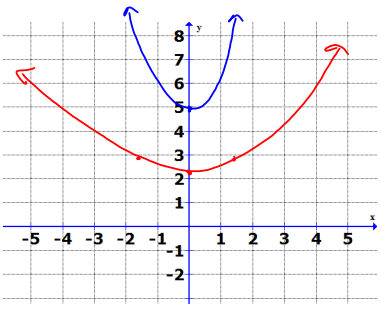
ex3: Sketch $y = \sqrt{x^2 + 5}$

$Y = x^2 + 5$

root of all y co-ords



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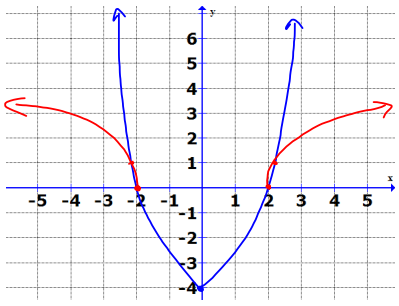
ex4: Sketch $y = \sqrt{x^2 - 4}$

$Y = x^2 - 4$



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HW: p86#8, 11