Review for the Topic 2 Test:

- Go over your notes and inclass examples
- Go over homework
- Work on the review I gave you
- Look at the following Agilemind
  More Practice Problems: #'s 1, 4-6, 8-10, 12
- Review Agilemind material online

For a given relation to have an inverse that IS a function:

- The original function must be one-to-one

or

- The original function must pass the Hoizontal Line Test.

To restict the domain of a quadratic so that the inverse IS a function all you really need to know is.....

The x-coorinate of the Vertex!

Generally, the restriction will be

$x \geq$ the x-coord of the vertex

Normally when we find the square roots of a number there are two answers:

Find the square roots of 9:

What are all the numbers that can be squared to equal 9?

$x^2 = 9$ $\quad$ $x = \pm 3$

In order to make the inverse of $y = x^2$ a function we must restrict the domain for it to be one-to-one.

When we restrict the domain to the right side ("positive" side) of the parabola the inverse becomes the top half of the "sideways parabola".

Instead of the inverse of $y = (x-1)^2 - 3$

being $y = \pm\sqrt{x+3} + 1$ — normally two answers when you square root

it becomes $y = +\sqrt{x+3} + 1 = \sqrt{x+3} + 1$

Positive (Top) half of the sideways parabola.

When we restrict the domain to the left side ("negative" side) of the parabola the inverse becomes the bottom half of the "sideways parabola".

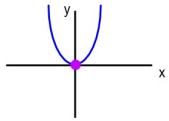
Instead of the inverse of $y = (x-1)^2 - 3$

being $y = \pm\sqrt{x+3} + 1$ — normally two answers when you square root

it becomes $y = -\sqrt{x+3} + 1$

Negative (bottom) half of the sideways parabola.

The graph of $y = x^2$ is the parent Quadratic Function which is a Parabola whose Vertex is at (0,0).



$$y = a(x \pm h)^2 \pm k$$

a>0 opens up
a<0 opens down
|a|>1 Vertical Stretch
0<|a|<1 Vertical Shrink

x+h moves h units left
x - h moves h units right

+ k moves k units up
- k moves k units down

Write the equation of the inverse relation:

$$y = 12\left(\frac{7\sqrt{4x-9}}{6}\right)^5 - 2$$

$$f^{-1}(x) = \left(\frac{6\sqrt[5]{\frac{x+2}{12}}}{7}\right)^2 + 9$$

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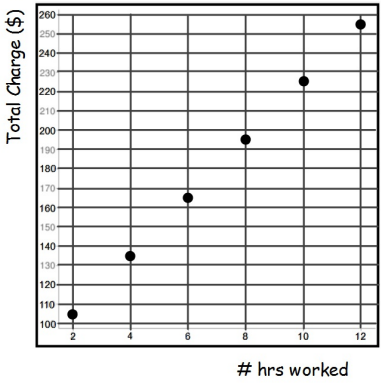
Agilemind: Topic 3 - Transforming Functions

Transformations

- Dilation (shrink/stretch)
- Reflection (FLIP)
- ROTATION (TURN)
- Translation (SLIDE)

Below is a scatter plot of data collected showing the number of hours worked by a plumber and the total charge incurred.



1. What kind of function models this data?

Appears to be Linear

2. Explain two different ways how you know that this type of function models this data.

- Data forms a line
- Constant Rate of Change
- Constant 2nd difference

	hrs	$	
2	2	105	30
2	4	135	30
2	6	165	30
2	8	195	30
2	10	225	30
2	12	255	