

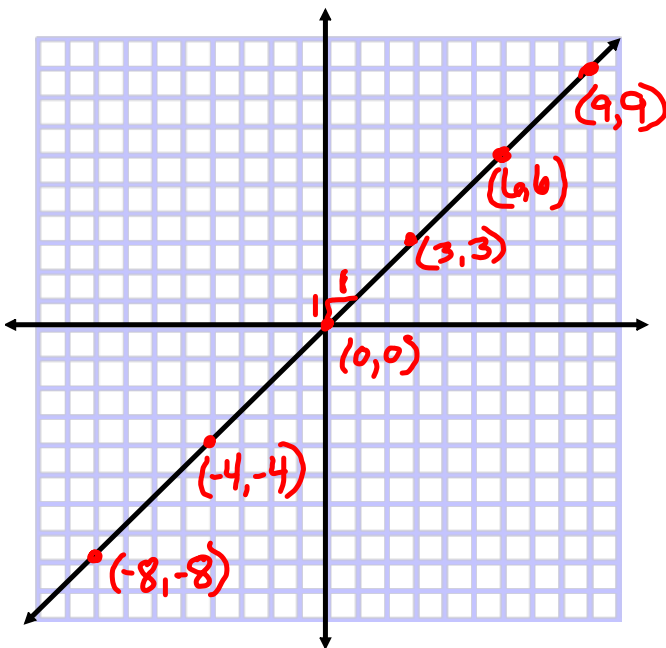
Pre - 1.6

Math Analysis Graph Parent Functions

Points of Interest

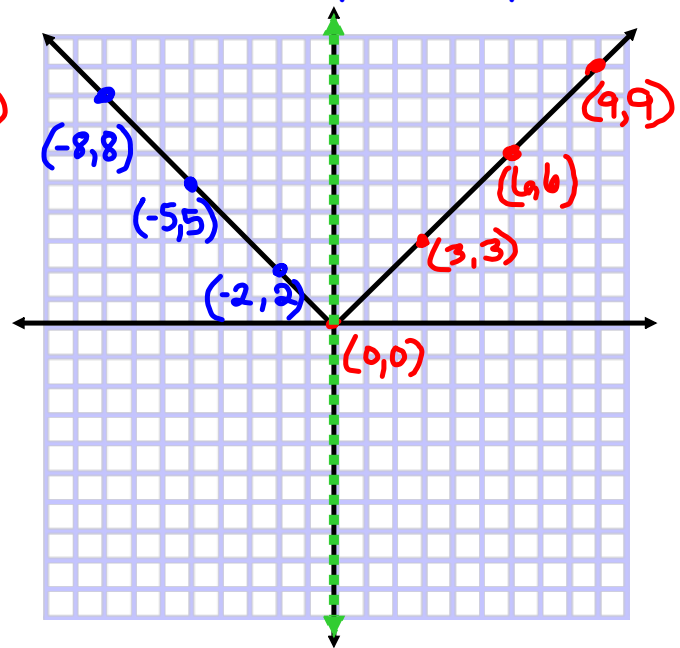
Linear: $y = x + 0$

- slope = 1
- y-intercept = (0,0)



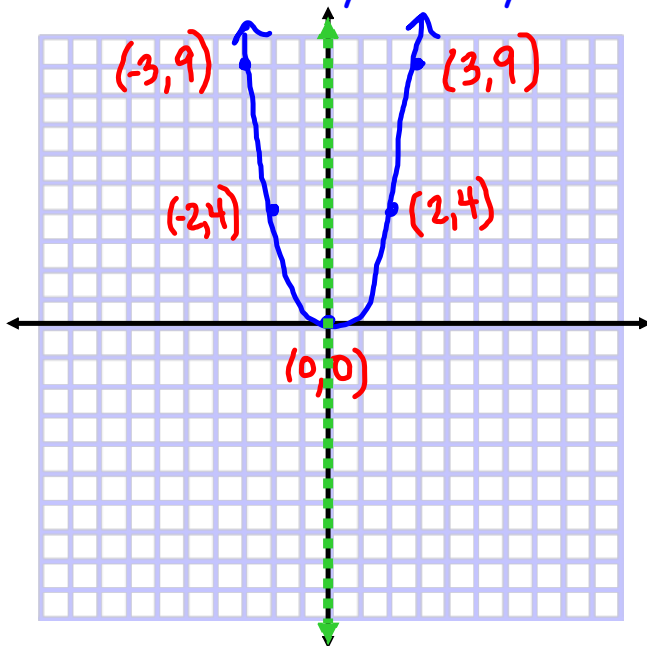
Absolute Value: $y = |x|$

- vertex = (0,0)
- $y = x$ & $y = -x$
- Line of Symmetry $x = 0$

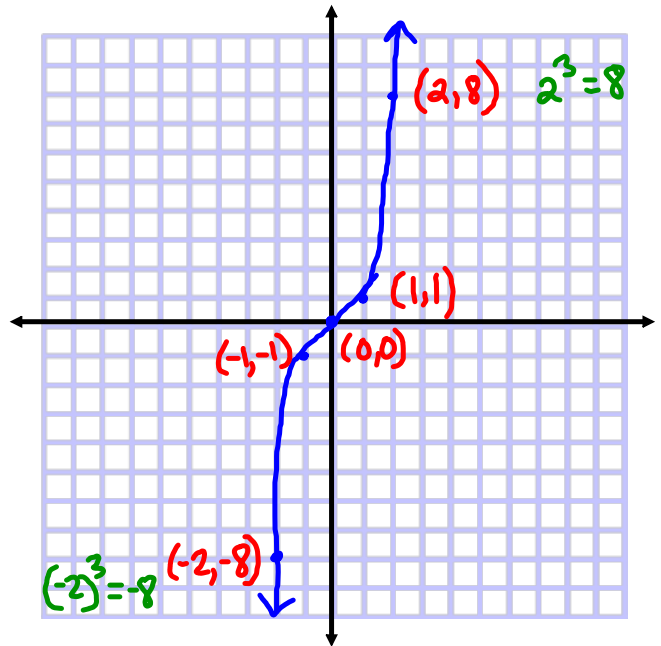


Points of Interest Contd...Quadratic: $y=x^2$

- vertex = $(0, 0)$
- $(2, 4)$, $(-2, 4)$
- U shape (*parabola*)
- Line of Symmetry $x=0$

Cubic: $y=x^3$

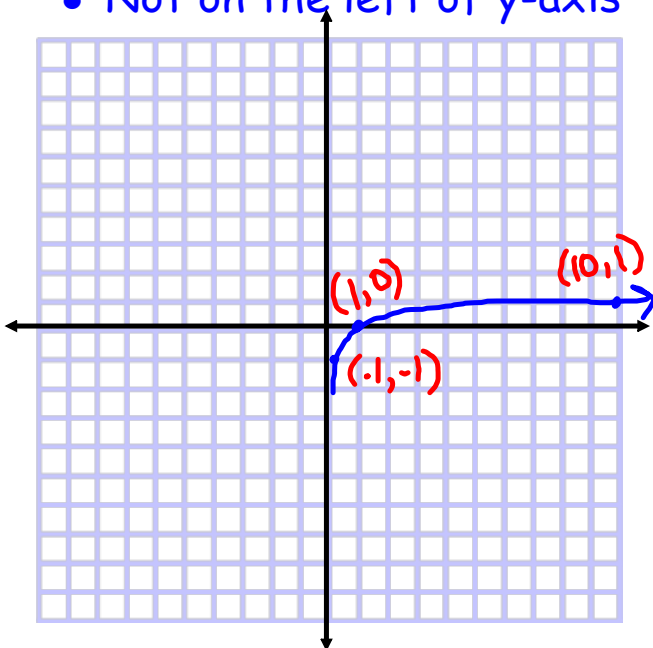
- y-intercept = $(0, 0)$
- S shape
- $(1, 1)$, $(-1, -1)$, $(2, 8)$, $(-2, -8)$



Points of Interest Contd...

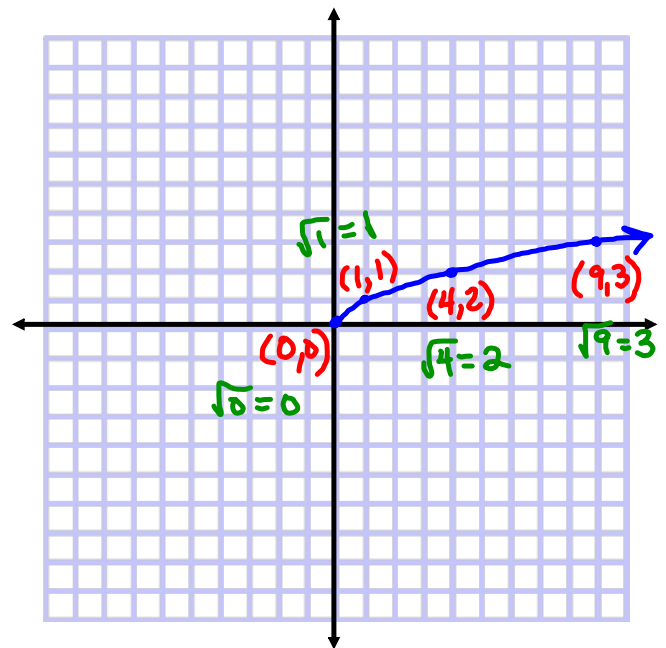
Logarithmic: $y = \log_{10}(x)$

- x-intercept = (1, 0)
- (10, 1), (.1, -1)
- Not on the left of y-axis



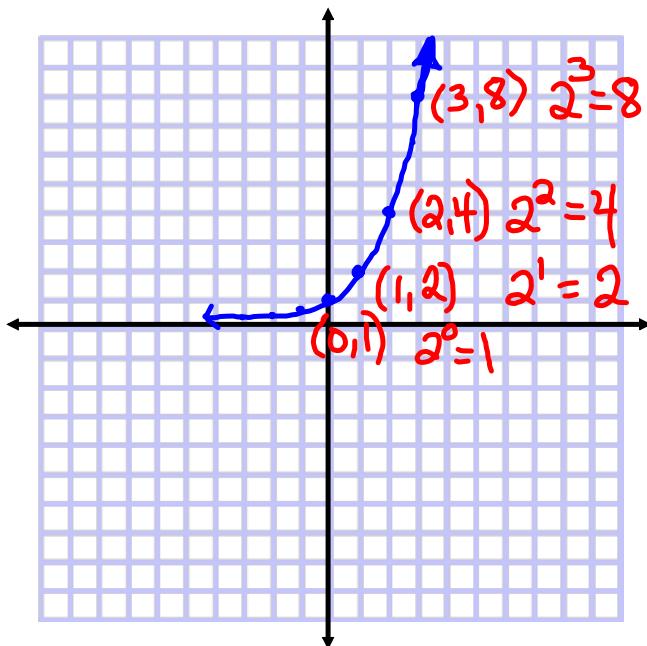
Square Root: $y = \sqrt{x}$

- x & y-intercept = (0, 0)
- Only in Q1



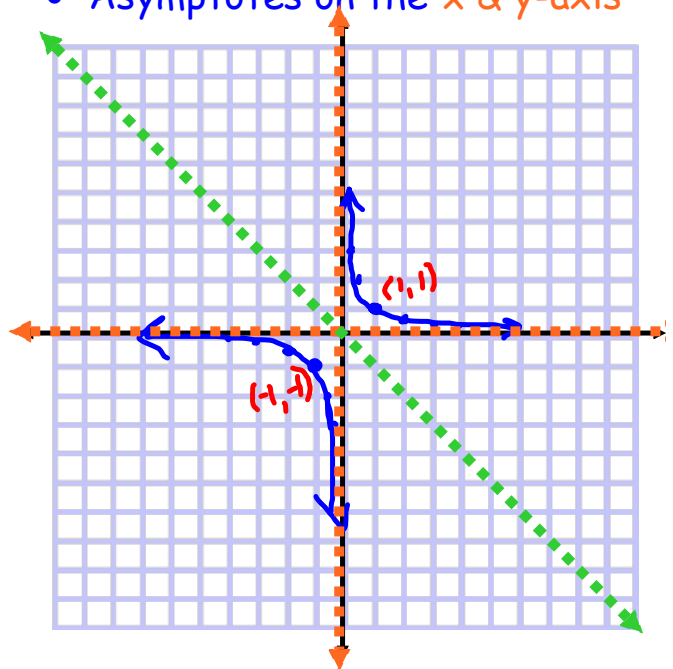
Points of Interest Contd...Exponential: $y=2^x$

- y-intercept = (0, 1)
- another good point = (2, 4)

Rational: $y=1/x$

$$y = \frac{1}{x}$$

- center = (0, 0)
- right vertex = (1, 1)
- left vertex = (-1, -1)
- pieces are in Q1 & Q3
- Line of symmetry $y=-x$
- Asymptotes on the x & y-axis



Name the equation of the given parent function. Then graph that function.

1) quadratic

$$y = x^2$$

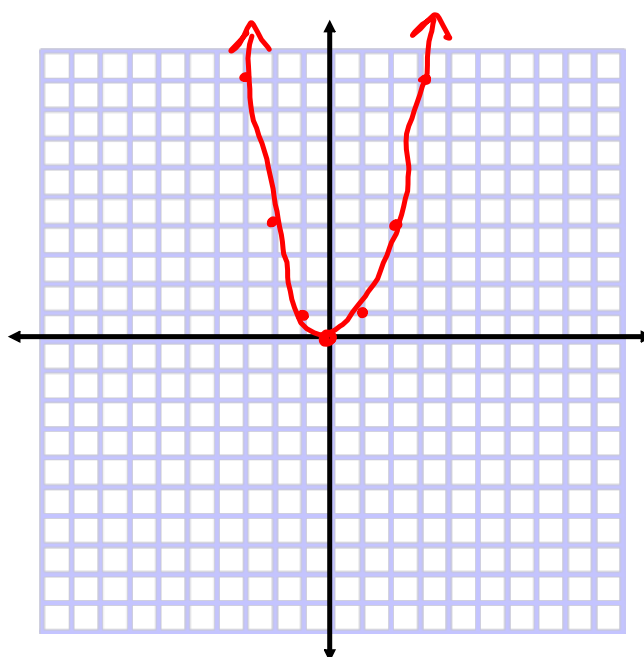
$$(0, 0)$$

$$(1, 1)$$

$$(-1, 1)$$

$$(2, 4) \quad (-2, 4)$$

$$(3, 9) \quad (-3, 9)$$



Name the equation of the given parent function. Then graph that function.

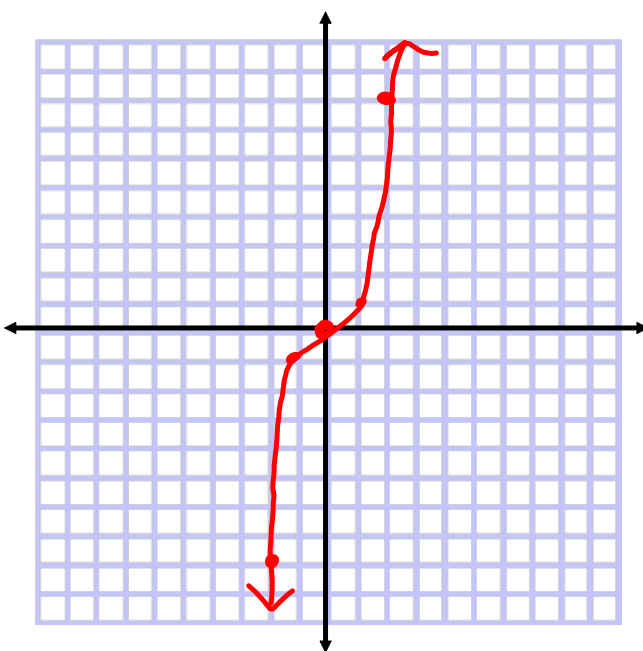
2) cubic

$$y = x^3$$

$(0, 0)$

$(1, 1)$

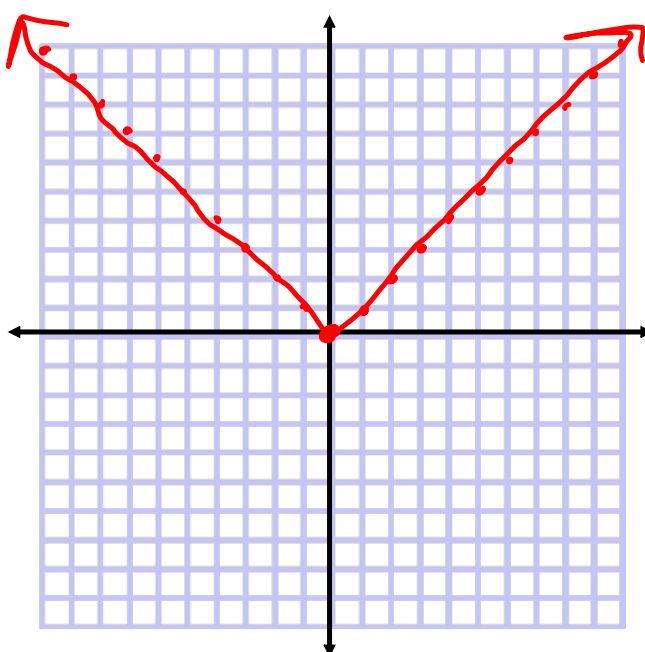
$(2, 8)$



Name the equation of the given parent function. Then graph that function.

3) absolute value

$$y = |x|$$



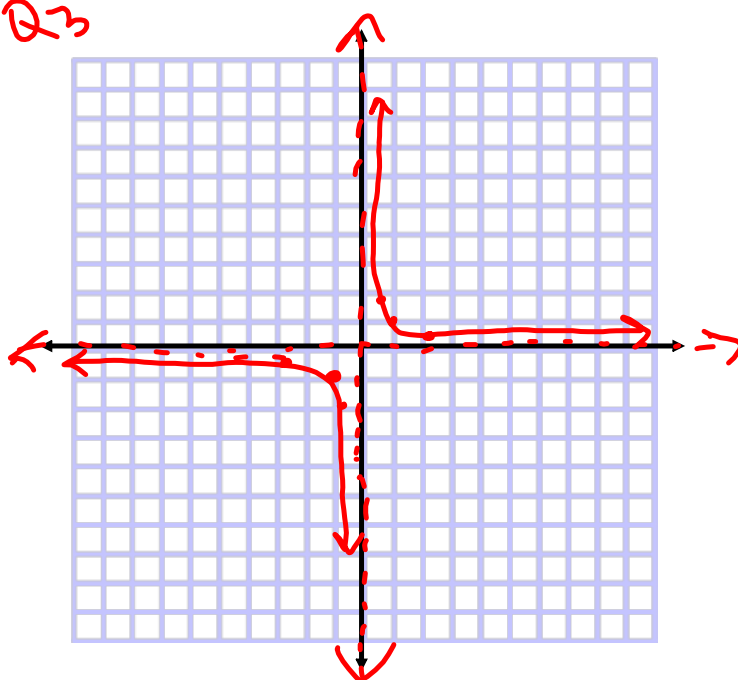
Name the equation of the given parent function. Then graph that function.

4) rational *fractions*
 \mathbb{Q}_1 & \mathbb{Q}_3

$$y = \frac{1}{x}$$

$$(1, 1) \quad (2, \frac{1}{2})$$

$$(-1, -1)$$



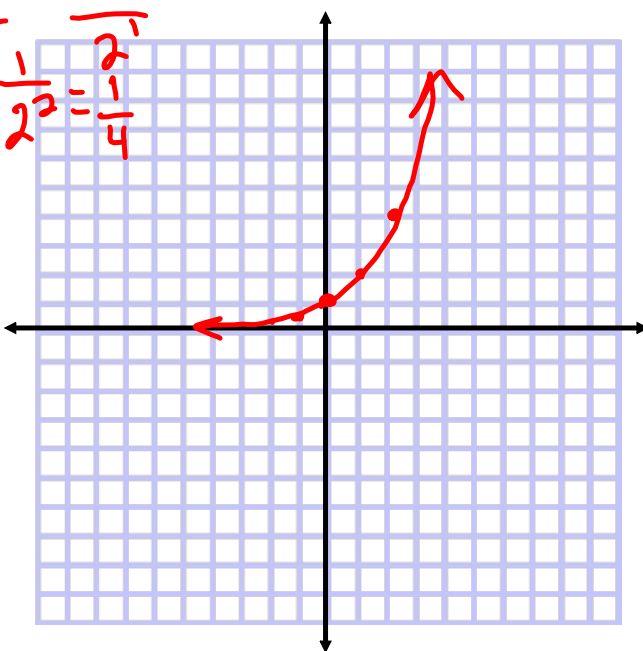
Name the equation of the given parent function. Then graph that function.

5) exponential

$$y = 2^x$$

$2^0 = 1$ $2^{-1} = \frac{1}{2}$ $2^{-2} = \frac{1}{2^2} = \frac{1}{4}$

$(0, 1)$ $(-1, \frac{1}{2})$
 $(1, 2)$ $(-2, \frac{1}{4})$
 $(2, 4)$



Name the equation of the given parent function. Then graph that function.

6) square root

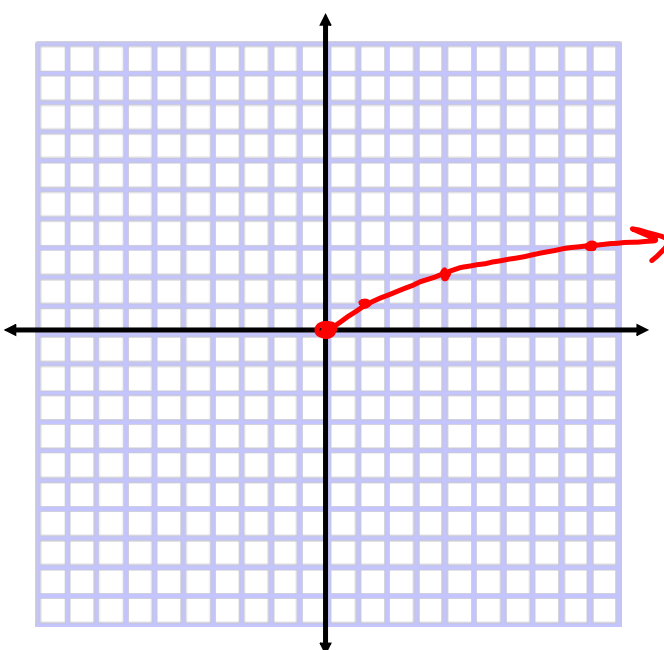
$$y = \sqrt{x}$$

$$(0, 0)$$

$$(1, 1)$$

$$(4, 2)$$

$$(9, 3)$$



Name the equation of the given parent function. Then graph that function.

7) logarithmic

$$y = \log_{10}(x)$$

$$10^y = x$$

$$10^1 = 10 \quad 10^0 = 1$$

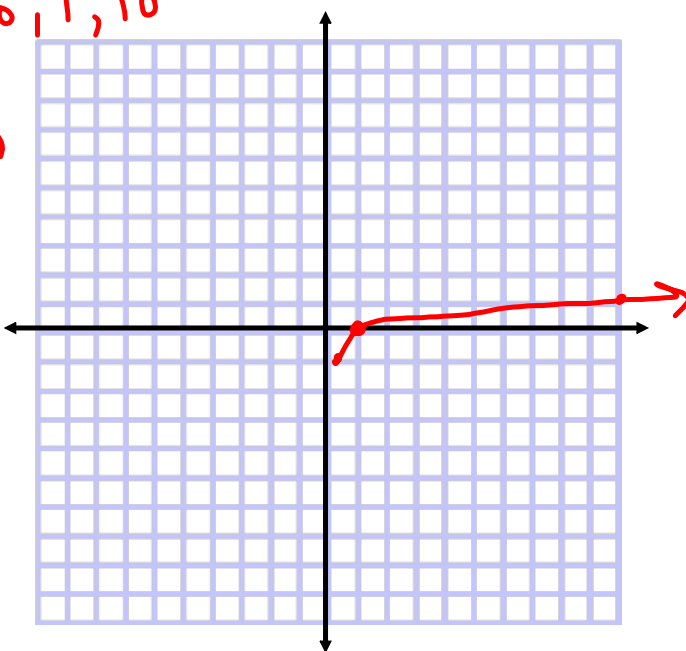
$$(x, y)$$

$$(10, 1)$$

$$(1, 0)$$

$$x = \frac{1}{10}, 1, 10$$

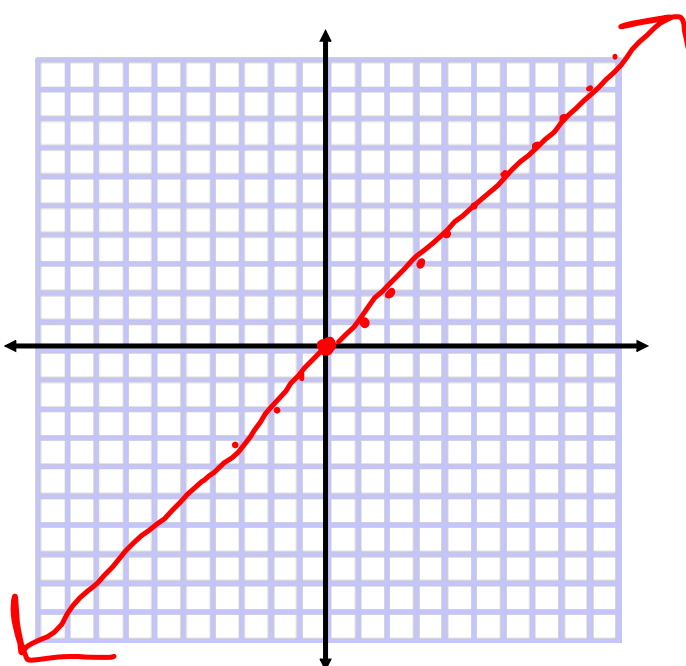
$$10^{-1} = \frac{1}{10} (-1)$$

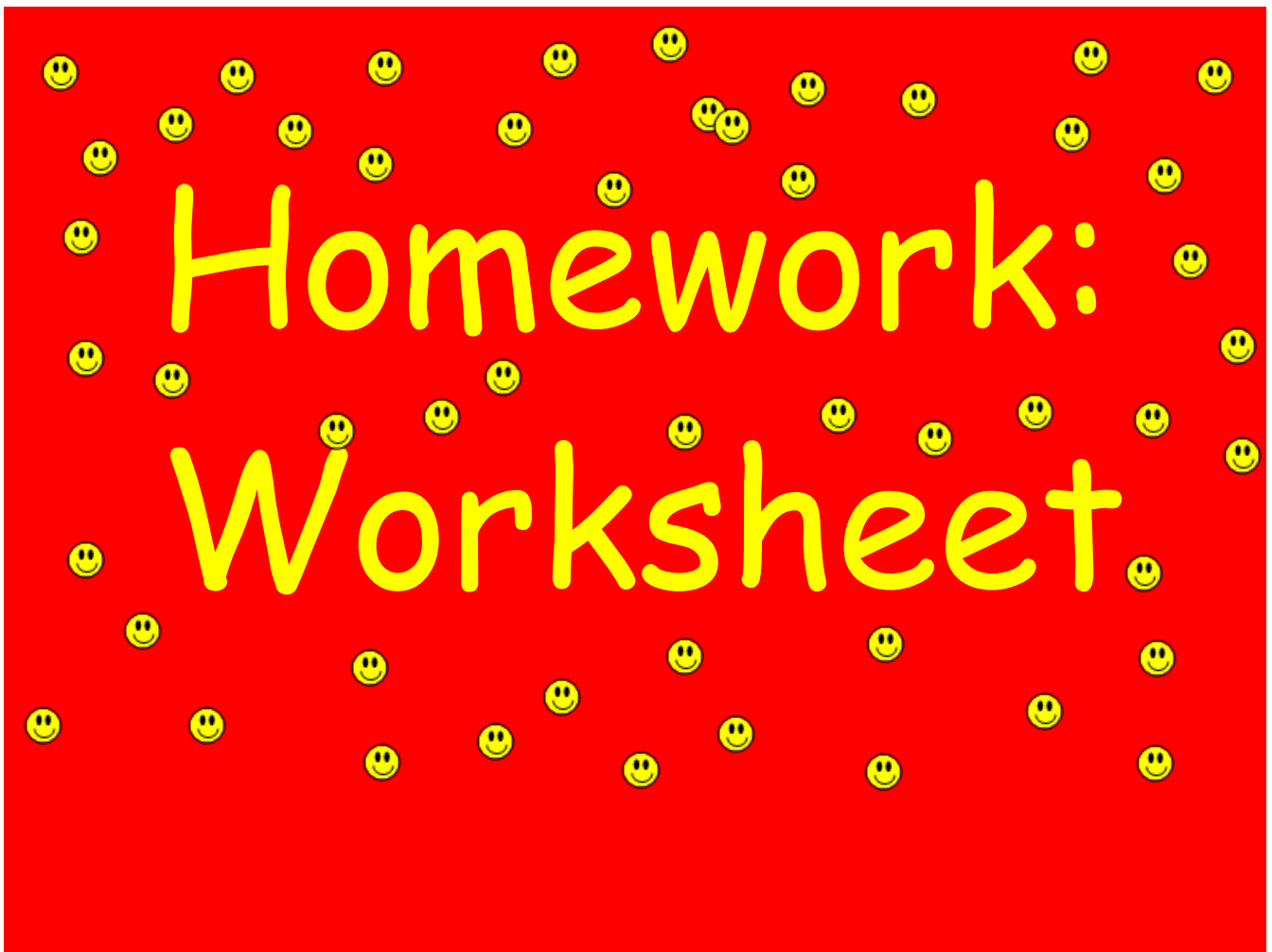


Name the equation of the given parent function. Then graph that function.

8) linear

$$y = x$$
$$y = \frac{1}{1}x + 0$$



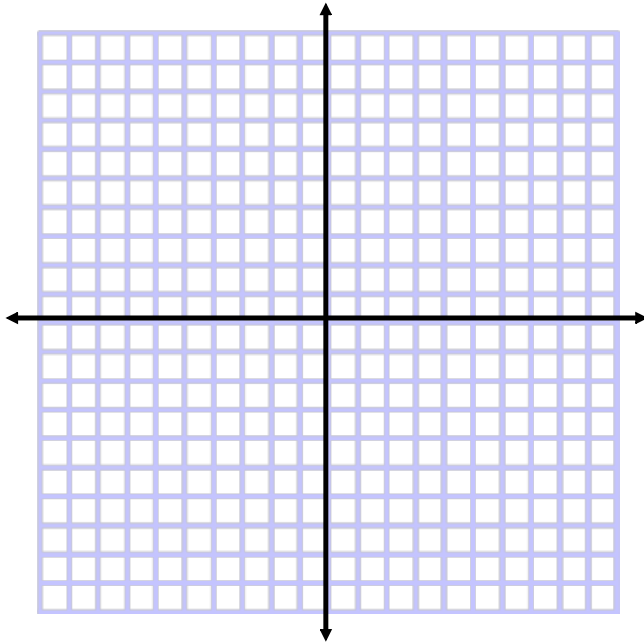


Math Analysis
1.6 Graph Parent Functions

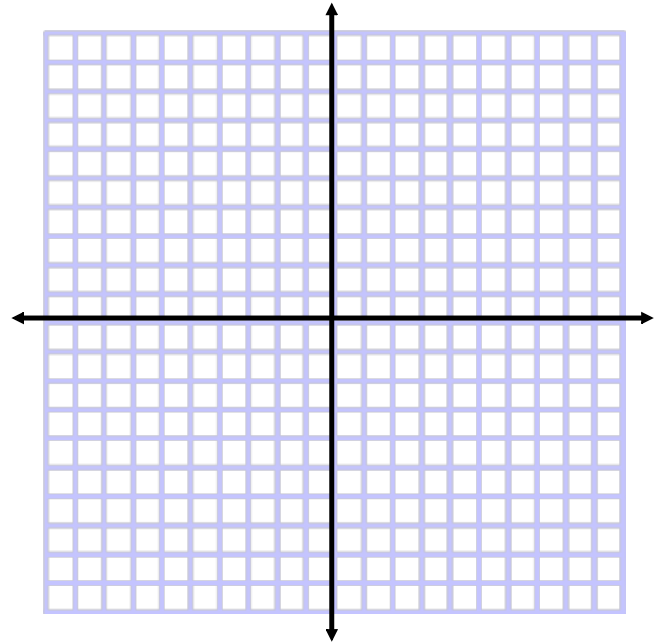
Name: _____ Date: _____ Hr: _____

Name the equation of the given parent function. Then graph that function.

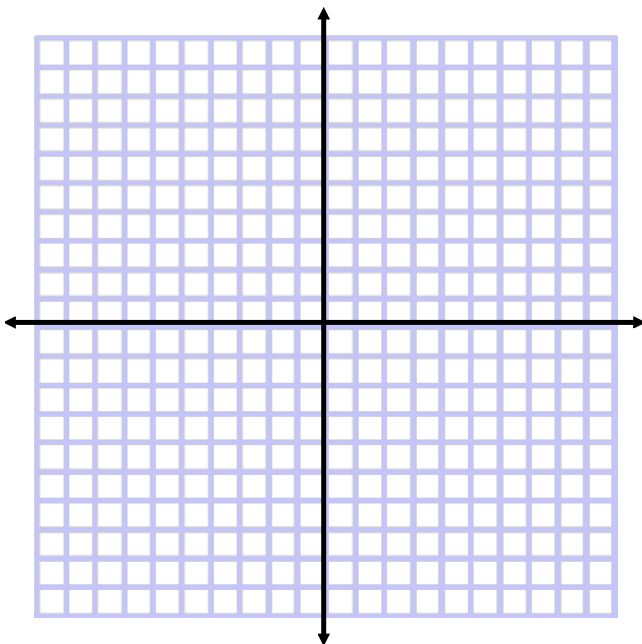
1) Linear: _____



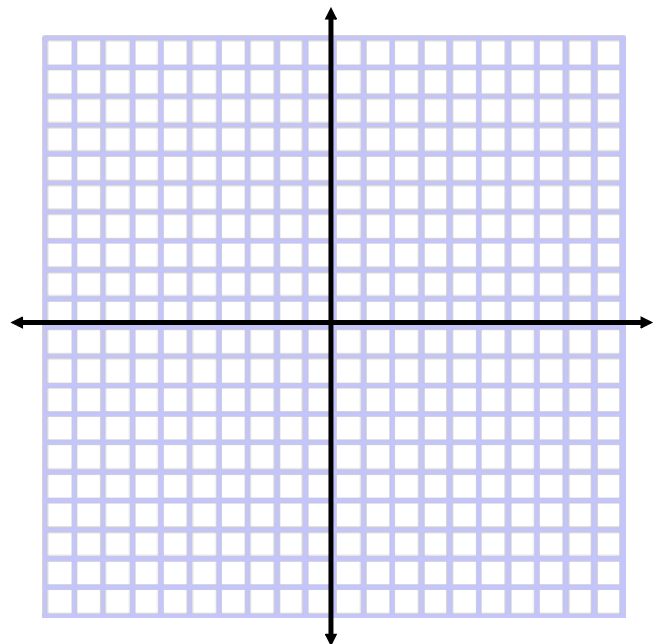
2) Square Root: _____



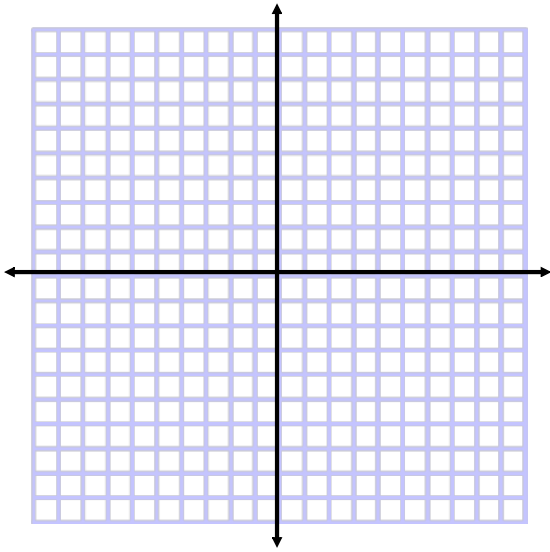
3) Quadratic: _____



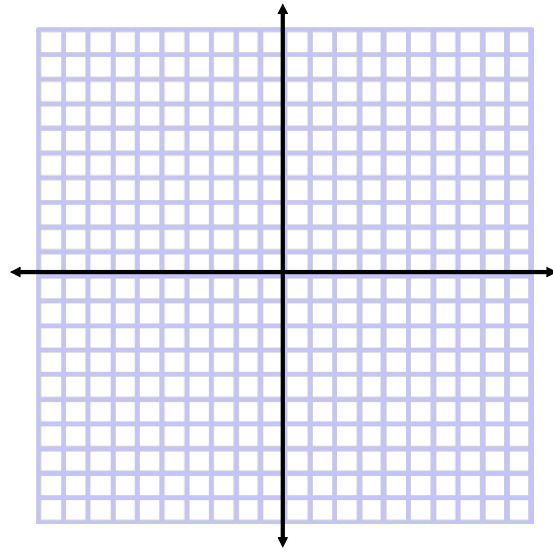
4) Cubic: _____



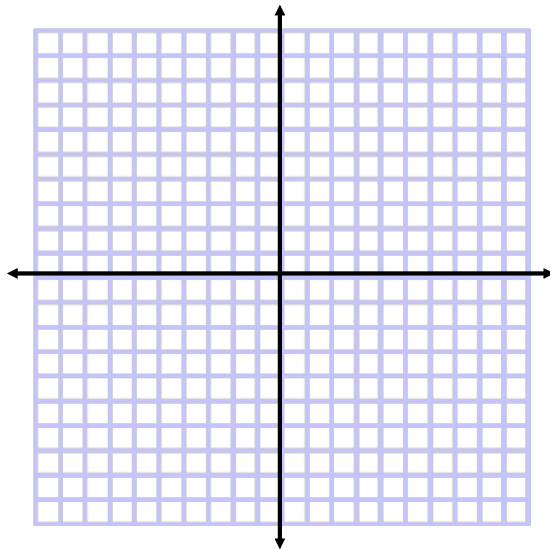
5) absolute value: _____



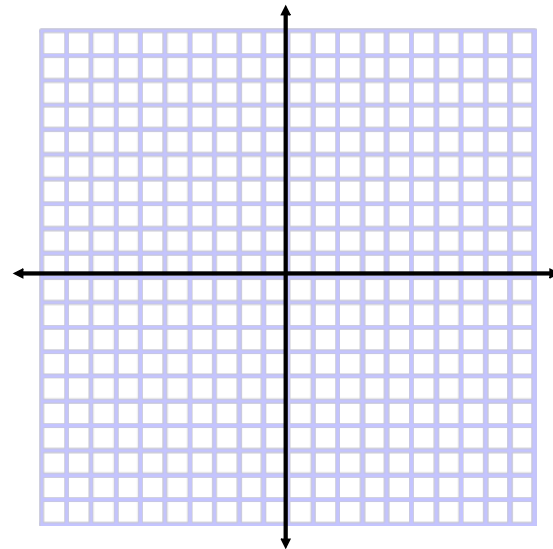
6) rational: _____



7) exponential: _____



8) logarithmic: _____



Extra Credit: Graph $y = x^4$

