

# FUNctions - Basic Graphs

MATH by Wilson  
Your Personal Mathematics Trainer  
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## Identity FUNction: $y = f(x) = x$

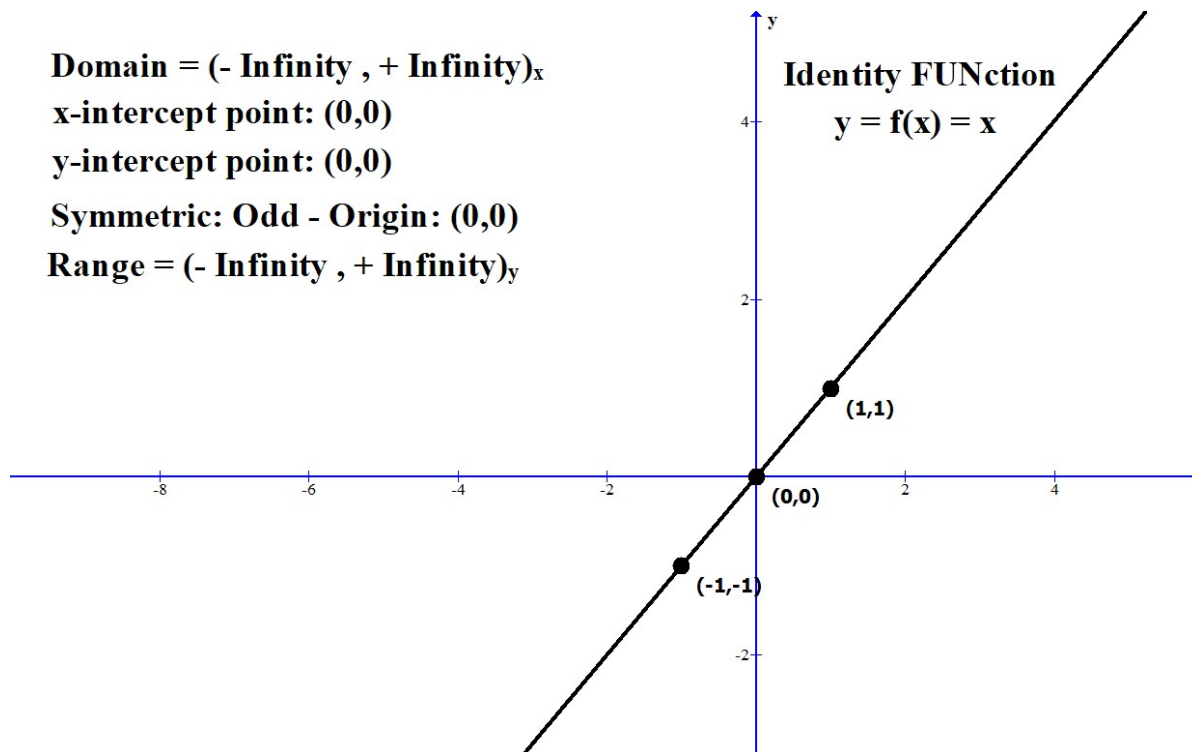
**Domain = (- Infinity , + Infinity)<sub>x</sub>**

**x-intercept point: (0,0)**

**y-intercept point: (0,0)**

**Symmetric: Odd - Origin: (0,0)**

**Range = (- Infinity , + Infinity)<sub>y</sub>**



# Square FUNCTION: $y = f(x) = x^2$

Domain = (- Infinity , + Infinity)<sub>x</sub>

x-intercept point: (0,0)

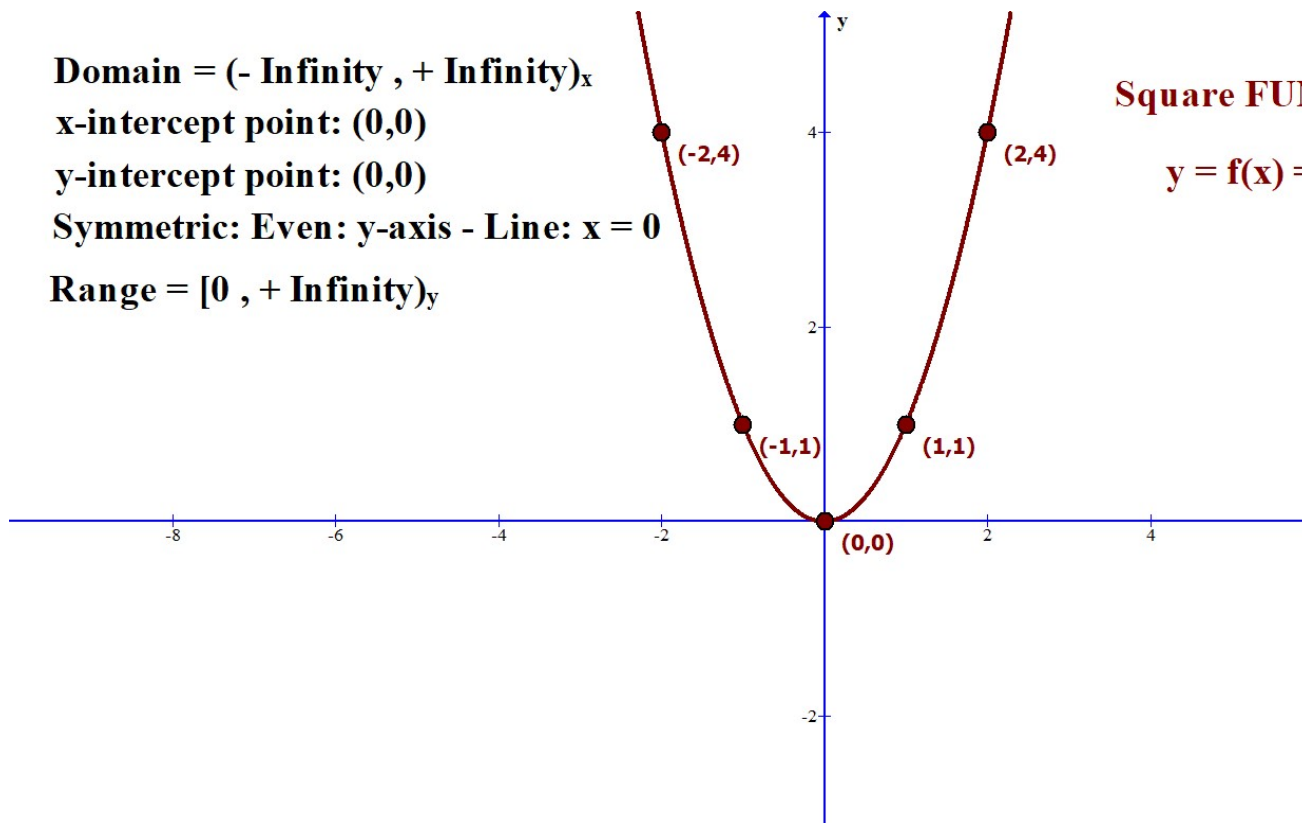
y-intercept point: (0,0)

Symmetric: Even: y-axis - Line:  $x = 0$

Range = [0 , + Infinity)<sub>y</sub>

Square FUN

$$y = f(x) =$$



## Cube FUNCTION: $y = f(x) = x^3$

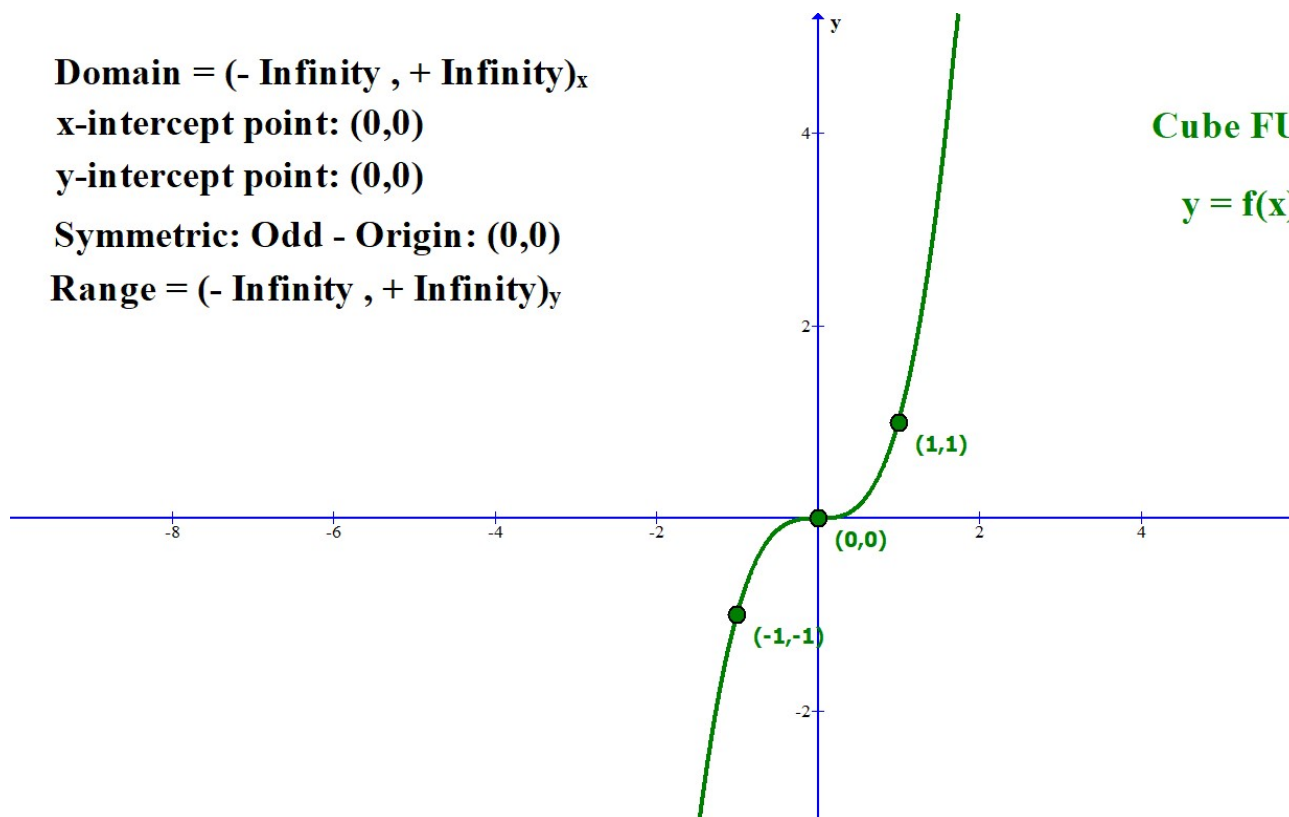
**Domain = (- Infinity , + Infinity)<sub>x</sub>**

**x-intercept point: (0,0)**

**y-intercept point: (0,0)**

**Symmetric: Odd - Origin: (0,0)**

**Range = (- Infinity , + Infinity)<sub>y</sub>**



# Square Root FUNCTION: $y = f(x) = \sqrt{x} = x^{1/2}$

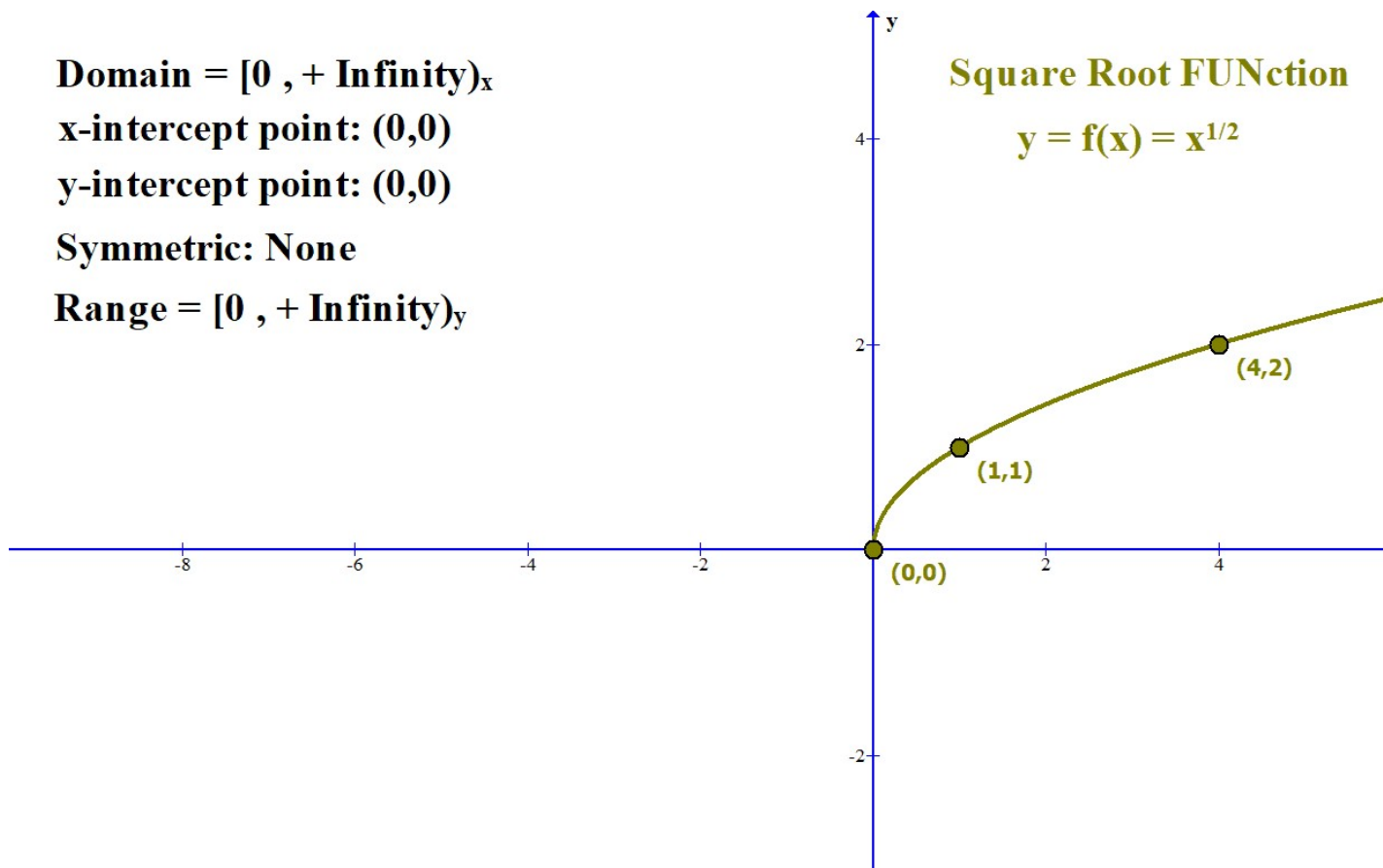
**Domain =  $[0, +\infty)$ <sub>x</sub>**

**x-intercept point:  $(0,0)$**

**y-intercept point:  $(0,0)$**

**Symmetric: None**

**Range =  $[0, +\infty)$ <sub>y</sub>**



# Cube Root FUNCTION: $y = f(x) = \sqrt[3]{x} = x^{1/3}$

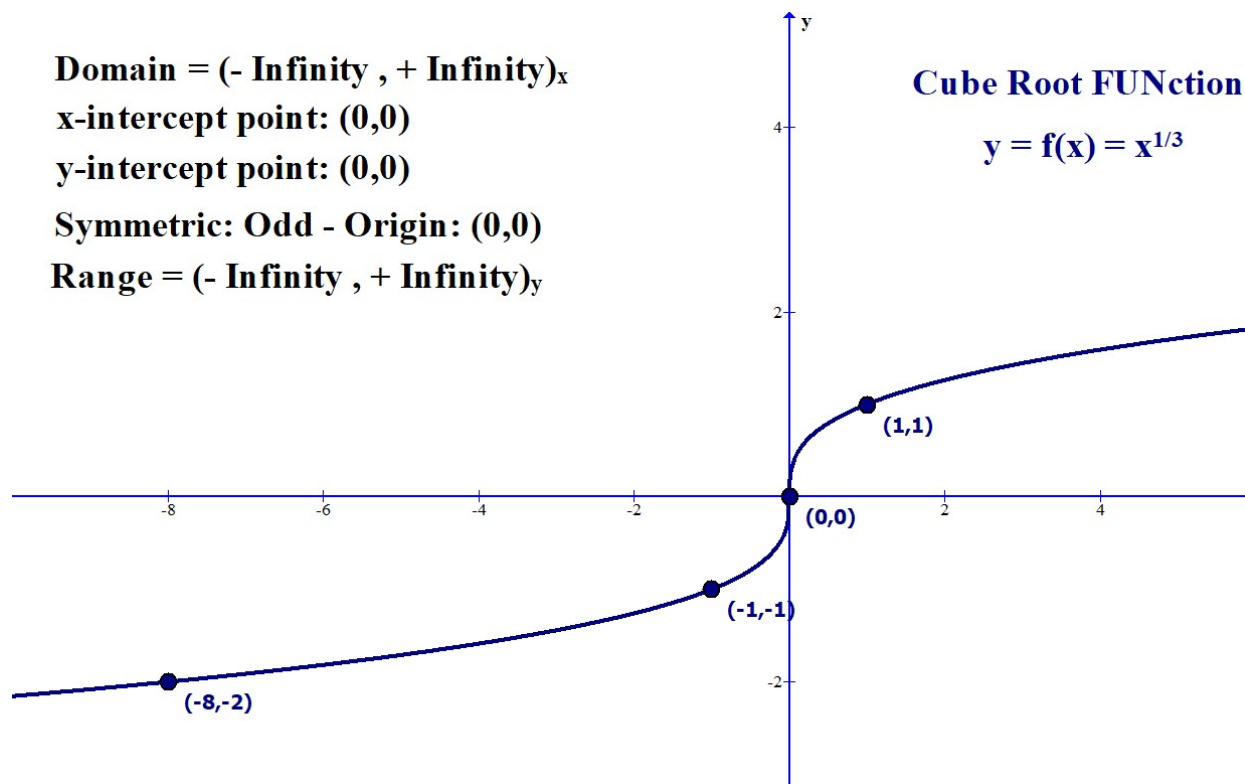
**Domain = (- Infinity , + Infinity)<sub>x</sub>**

**x-intercept point: (0,0)**

**y-intercept point: (0,0)**

**Symmetric: Odd - Origin: (0,0)**

**Range = (- Infinity , + Infinity)<sub>y</sub>**



## Absolute Value FUNCTION: $y = f(x) = |x| = \text{Abs}(x)$

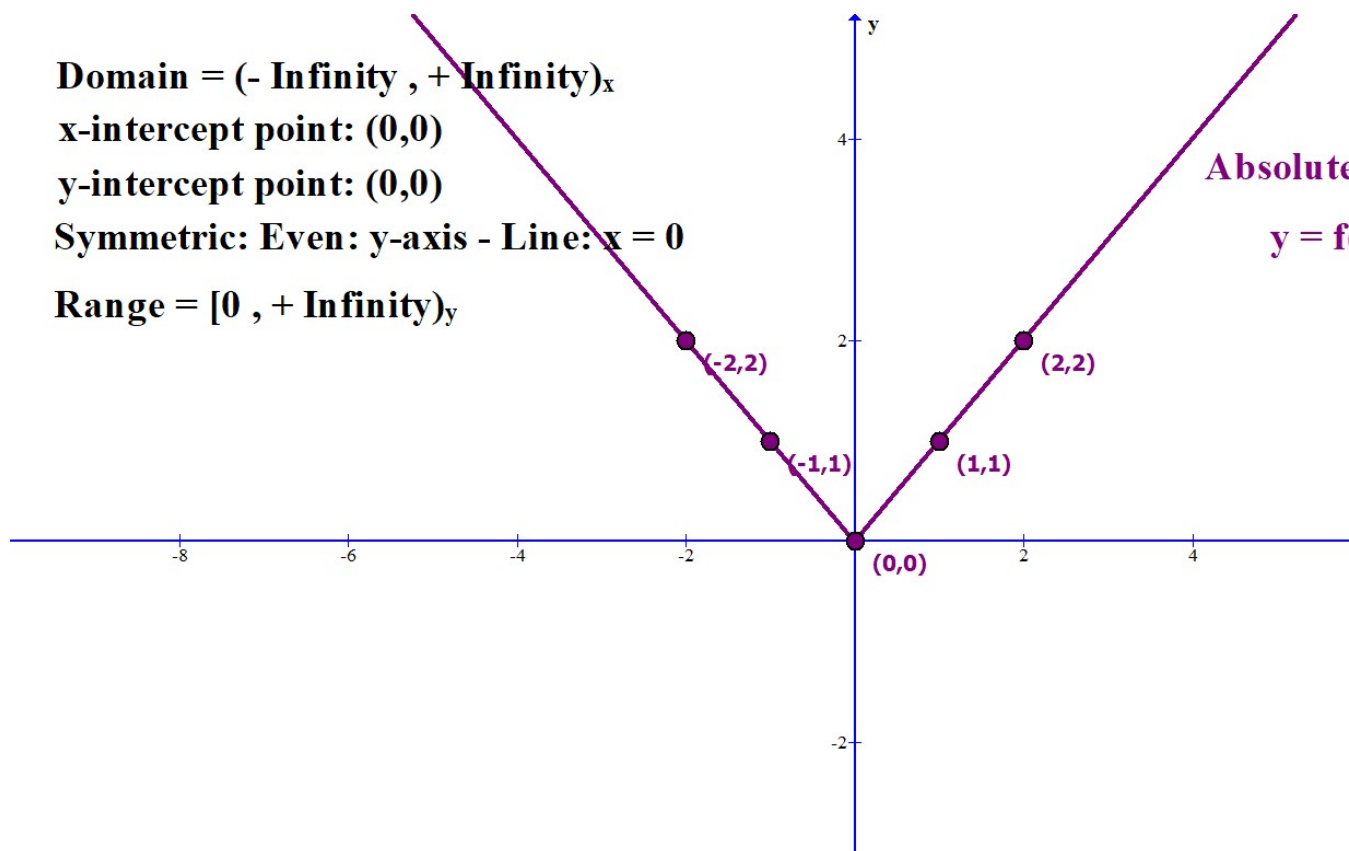
**Domain = (- Infinity , + Infinity)<sub>x</sub>**

**x-intercept point: (0,0)**

**y-intercept point: (0,0)**

**Symmetric: Even: y-axis - Line:  $x = 0$**

**Range = [0 , + Infinity)<sub>y</sub>**



# Reciprocal Identity FUNction: $y = f(x) = \frac{1}{x}$

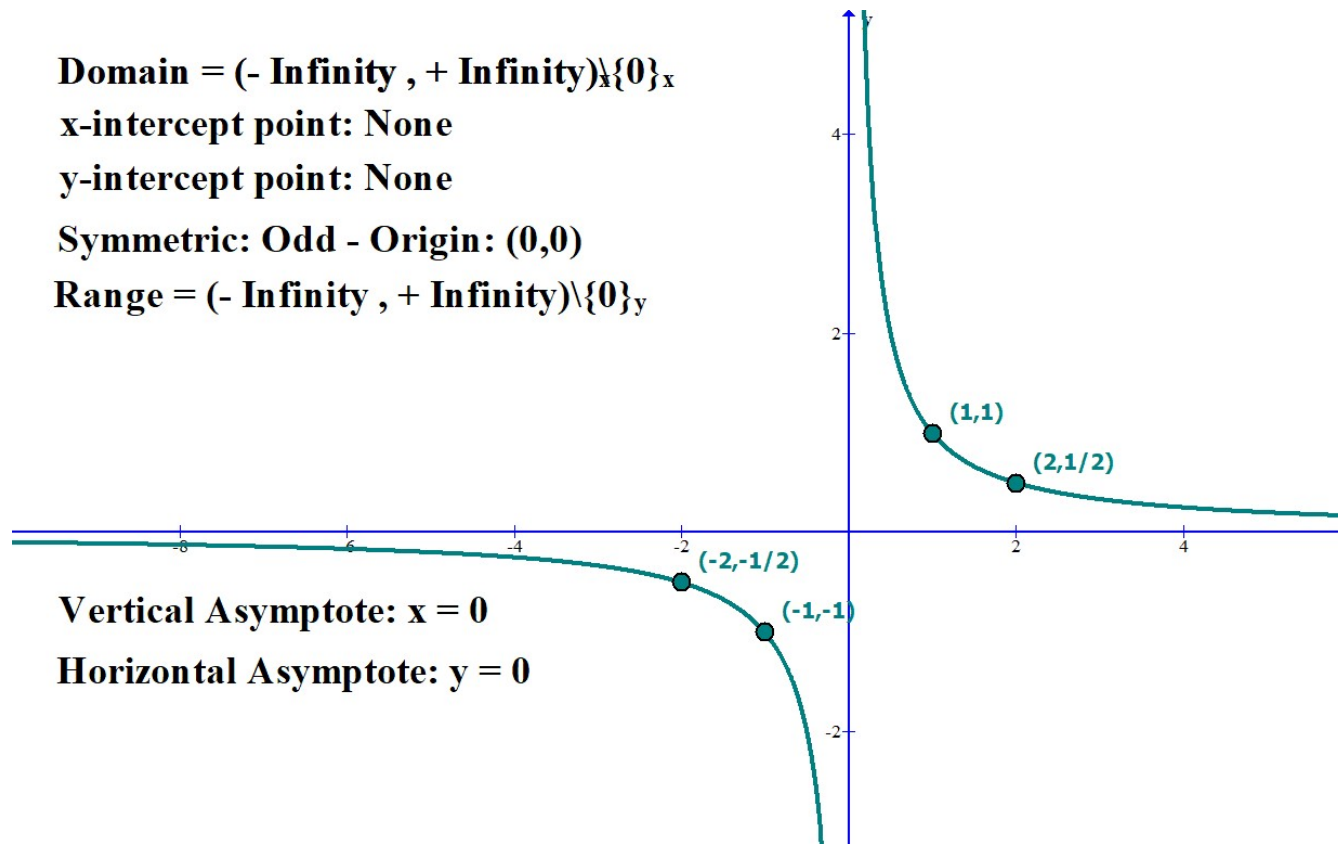
**Domain =  $(-\infty, +\infty) \setminus \{0\}_x$**

**x-intercept point: None**

**y-intercept point: None**

**Symmetric: Odd - Origin:  $(0,0)$**

**Range =  $(-\infty, +\infty) \setminus \{0\}_y$**



**Vertical Asymptote:  $x = 0$**

**Horizontal Asymptote:  $y = 0$**

# Reciprocal Square FUNCTION: $y = f(x) = \frac{1}{x^2}$

**Domain =  $(-\infty, +\infty) \setminus \{0\}_x$**

**x-intercept point: None**

**y-intercept point: None**

**Symmetric: Even: y-axis - Line:  $x = 0$**

**Range =  $(0, +\infty)_y$**

