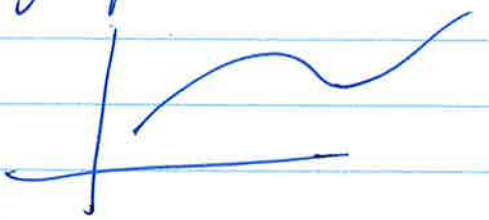
Math 211 - 2015S - W1 - Tues

What is a function?

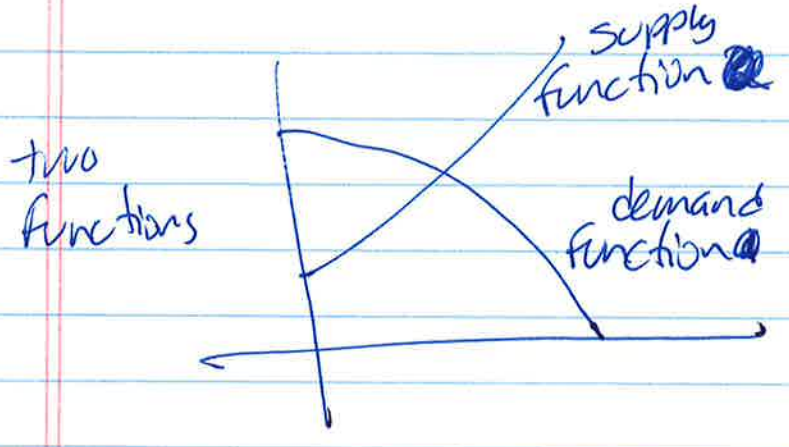
mapping
domain
range
vertical line test

graph

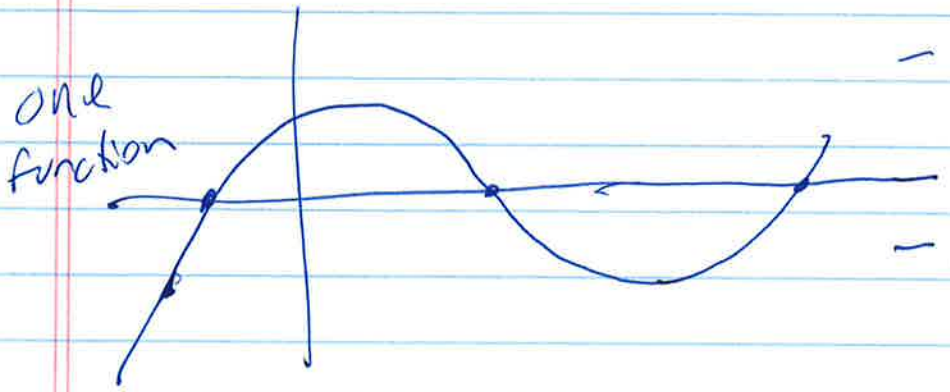


Intercepts

- value of one variable when other is zero



- how many vertical intercepts shown on graph? (across both functions)
- how many horizontal

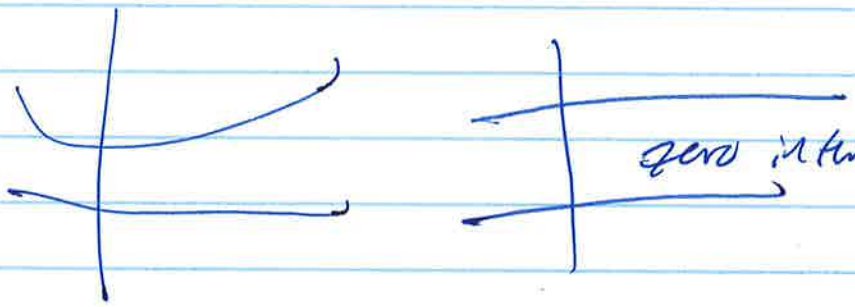


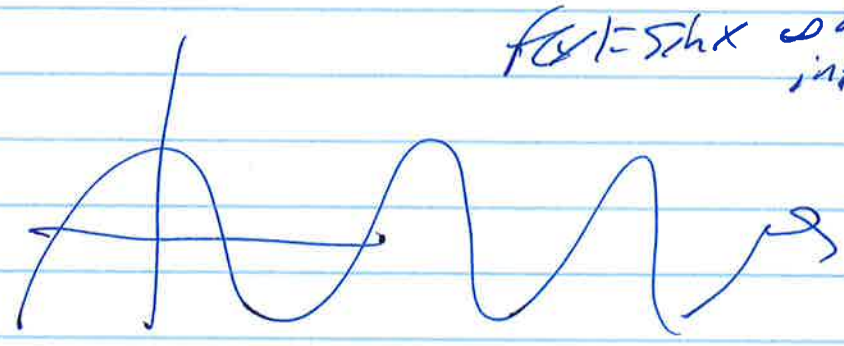
- how many vertical intercepts shown
- how many horizontal intercepts shown?

How many vertical intercepts are possible? 1

Vertical Line TEST

How many horizontal intercepts possible 0 – ∞





Horizontal intercepts are also called the zeros of the function.

Increasing / Decreasing functions

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Linear functions

* Graphs are lines

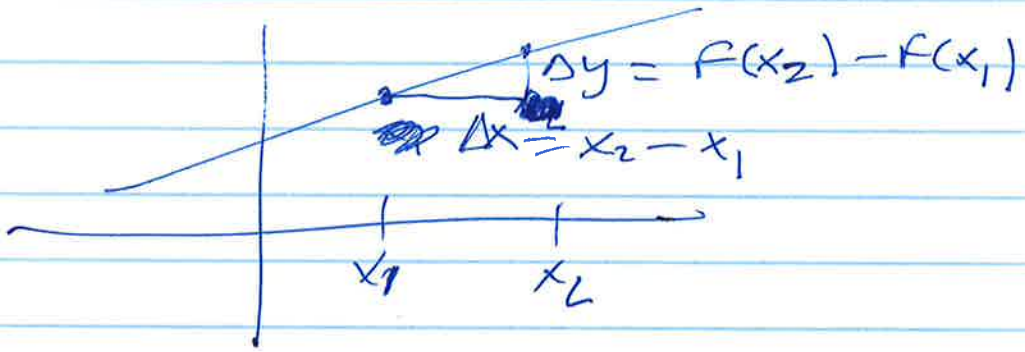
* What is equation for a line?

$y = mx + b$

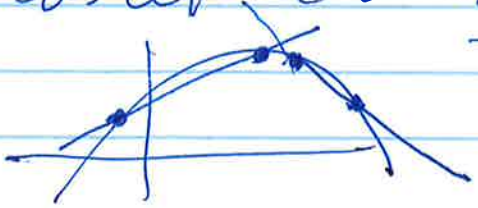
$$m = \text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{\Delta y}{\Delta x} = \frac{\text{change in } y}{\text{change in } x}$$

$$= \frac{f(x_2) - f(x_1)}{x_2 - x_1} = \text{rate of change of } g \text{ wrt } x$$

This is called a difference quotient
For a line the difference quotient does not depend on the points x_2 and x_1



For a curved function the difference quotient does depend on x_1 and x_2



This is a big deal in calculus

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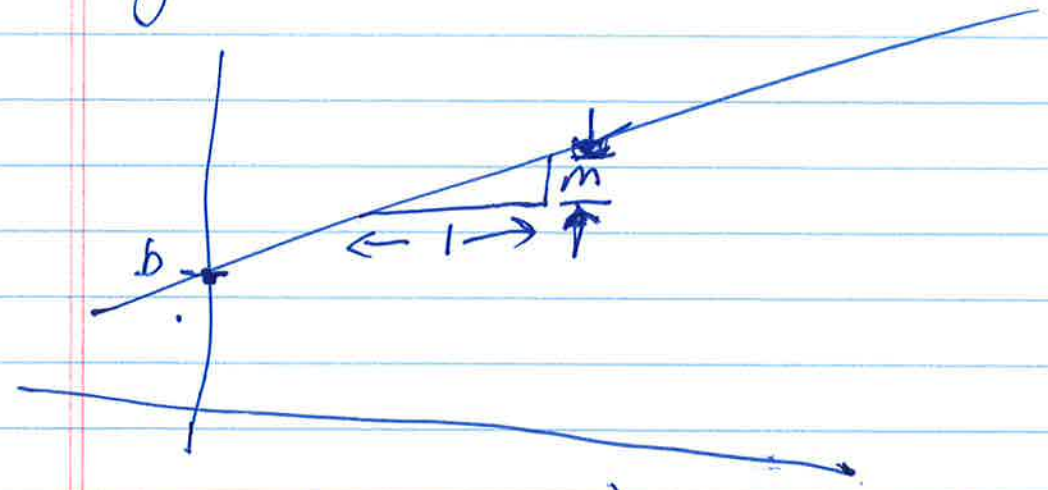
$y = mx + b$



b is (y intercept) or vertical intercept