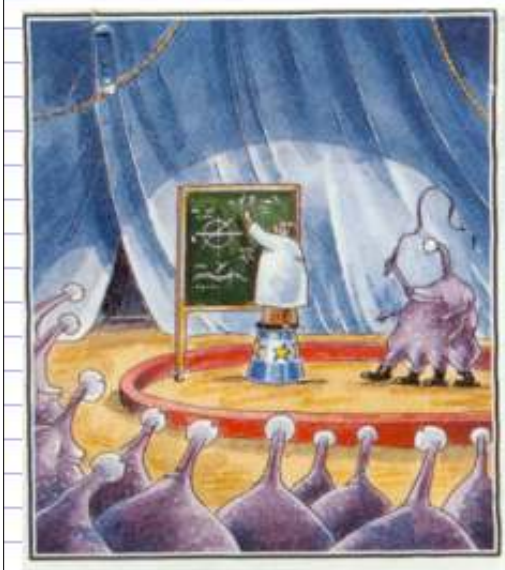
Panel 1

Welcome to Math 1303



Abducted by an alien circus company, Professor Doyle is forced to write calculus equations in center ring.

Quantitative Methods for Business

or

Business Calculus

1

Panel 2

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HW #1: Download Dyknow

HW #2: Buy textbook

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Panel 3

Grading

Quizzes every week:	125 points
3 exams:	300 points
1 final:	250 points
Computer assignments:	125 points
	800

About the final:

- cumulative + difficult
- computer portion + regular portion
- counts a lot
- dept. final

Be prepared!

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Panel 4

What is covered in Business Calc

calculus

(1) Suppose it costs $500 to produce x widgets with fixed costs of $1,250. Assuming a marginal revenue of $750 per unit, how many units to produce for max. profit (or min. cost)

financial math

(2) To purchase a home you borrow $200,000 from the bank at 4.0 % interest fixed over 30 years. How much is monthly payments, and how much do you pay to the bank in total? $350,000

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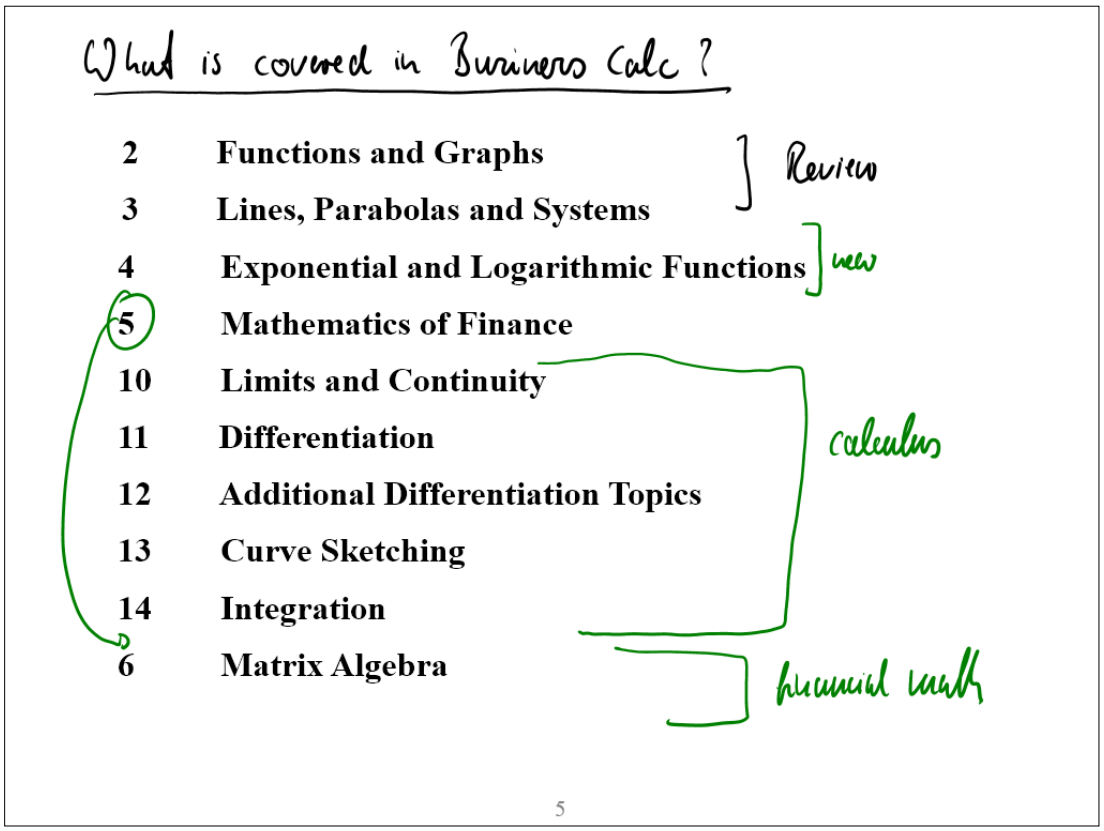
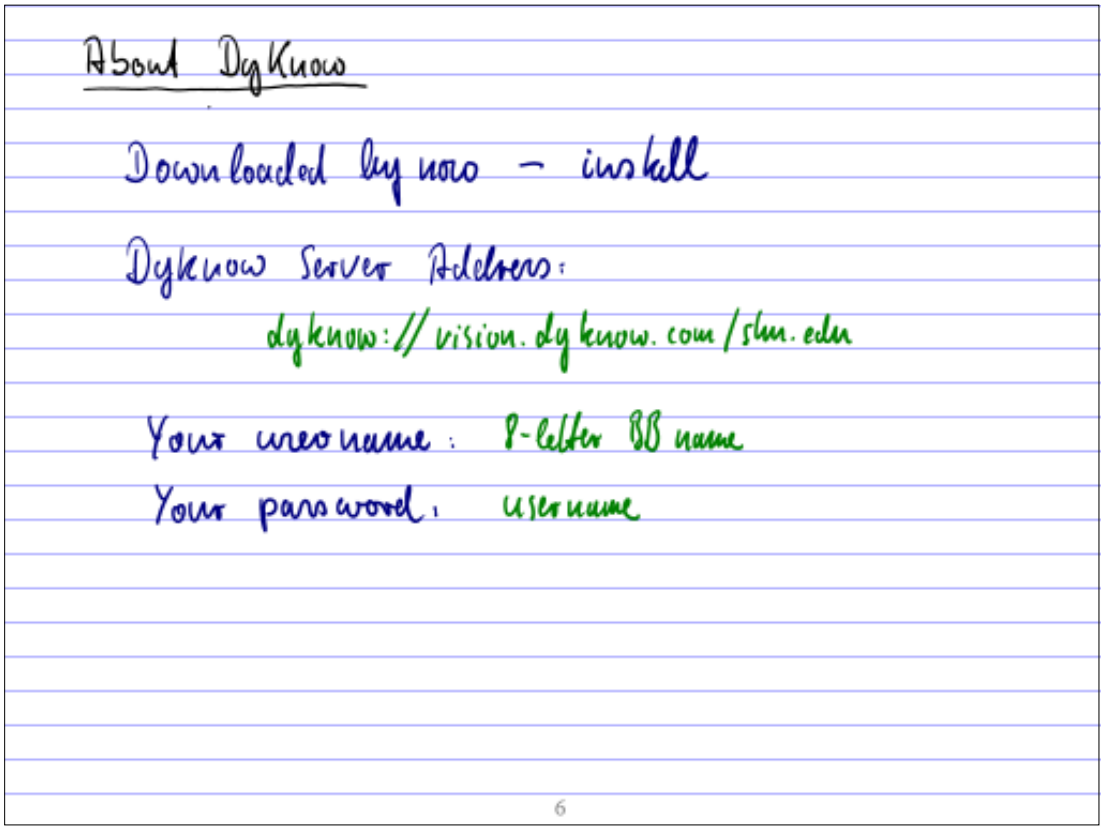
Panel 5



Panel 6



Panel 7

Functions

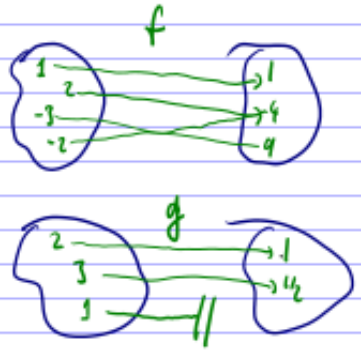
Def: A function is a rule that assigns to every x in a set A (input) exactly one element $y = f(x)$ from a set B (output)

Note: The set A is called: domain
The set B is called: range

Ex: $f(x) = x^2$

$g(x) = \frac{1}{x-1}$

$k(x) = 5$ boring



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Panel 8

Representing a function

4 different ways: verbally, numerically, algebraically *, geometrically *

Ex: Find domain

$f(x) = x^2 + 1$ D = all numbers, $\mathbb{R}$, $(-\infty, \infty)$

$g(x) = \frac{1}{x^2+1}$ $D = \mathbb{R}$

$h(x) = \frac{1}{x^2 - x}$ bad: $x^2 - x = 0$, $x(x-1) = 0$, $D = \mathbb{R} - [0,1]$

$k(x) = +\sqrt{x+2}$ want: $x + 2 \geq 0$, $D = [x \geq -2]$

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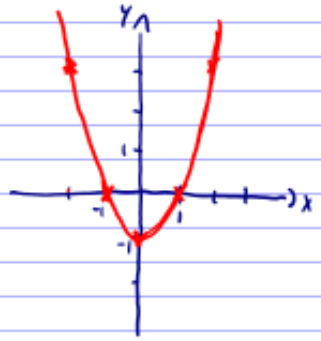
Panel 9

Graph of a function

The graph of a function $y = f(x)$ is the collection of ordered pairs (x, y), where $y = f(x)$, drawn in a Cartesian coordinate system.

Ex: Sketch $f(x) = x^2 - 1$

x	f(x)
-2	3
-1	0
0	-1
1	0
2	3



domain / range

$\mathbb{R}$ $[-1, \infty)$

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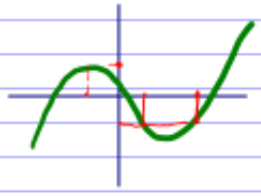
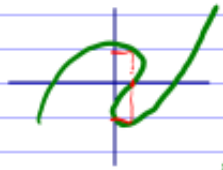
Panel 10

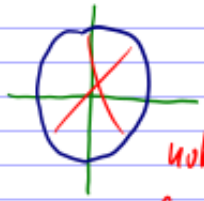
Not every graph represents a function:



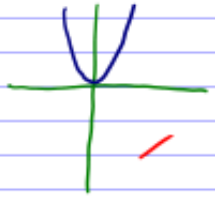


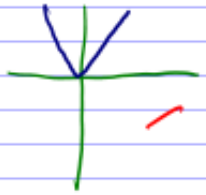
if and only if

Vertical Line Test: a graph represents a function iff no vertical line intersects graph more than once.



not a function





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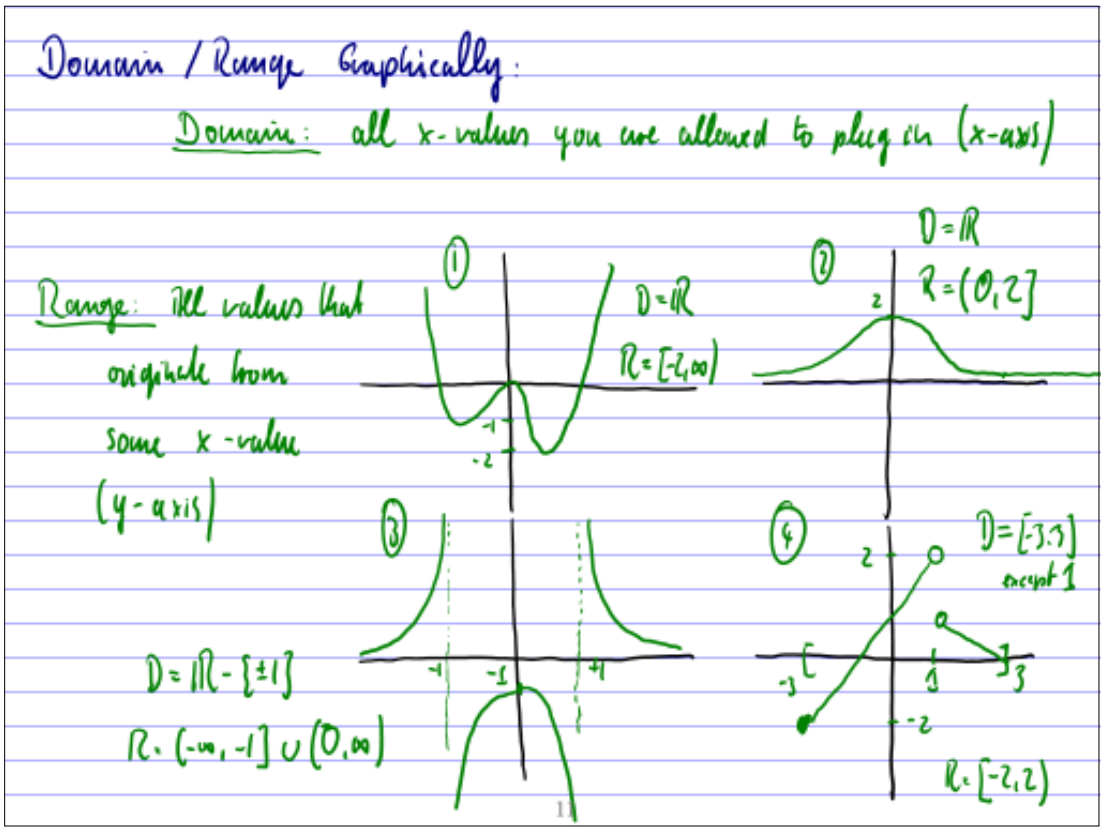
Panel 11



Panel 12