

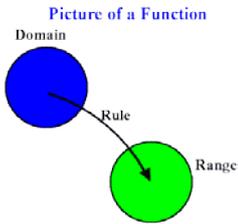
Goals

Topic: Functions and Relations. Unit Goal

- understand the concepts of relations and functions
- understand the inter-connectivity of the written, graphical and algebraic forms of relations
- develop mathematical models with various functions

This Week

- Definitions (functions, relations, domain, range, vertical line test)
- odd/even functions
- inverse relations and functions
- domain and range



sourced: <http://j.mp/JQgSyb>

Theoretical components

Background - the following information would be useful - read through 11 Math Methods Chapter 4, set 4A and 4B. Understand independent, dependant variables, discrete and continuous. Also get an understanding of the mathematical notation used to describe sets.

Find definitions for the following words: (research on internet) function, relations (4 types), domain, range and inverse, odd functions and even functions

(<http://www.mathsisfun.com/algebra/functions-odd-even.html>) this may help with even and odd)

11 Math Methods Chapter 4, set 4C Domain and Range Notation - know how to use the formal notation for describing a function (including $y=$ or $f(x) =$ and $f: X \rightarrow Y, f(x) = rule \dots$ and the domain and range. (including $[], \setminus, \mathbb{R}, \cap, \cup, \{ \epsilon \}$)

Inverse of a function is when you interchange the x and y values. See 4H for some examples.

h,k form of an equation defines the h (horizontal translation) and k (vertical translation) of functions and curves. The h,k form is a very useful form of writing a function. 2 other common forms are the general form, and the factorised form.

Q/F/O

Organise your Investigation folder – they are to be handed in by close of business Friday 3rd May.
Remember, Investigations are worth 25%.

Practical components

- 11 Math Methods Chapter 4
- 4A Set Notation
- 4B Relations and Graphs
- 4C Domain and Range
- 4D Types of Relations
- 4F Function Notation
- 4G Hybrid Functions
- 4H Inverse Relations and Functions
- 4I Circles
- 4J Functions and Modelling

Remember you do NOT need to do EVERY question. Just a couple of each type. Enough to become familiar with the questions, but not too many that you become bored with them. 1/2 hour each night should be plenty to keep the math content fresh in your mind and improve the fluency of your mathematics.

Investigation

Your investigation this week is to become familiar with the general equation and h,k forms of the following functions

- Quadratic functions
- Cubic functions
- Hyperbola
- Circle and
- Semi- Circle

You should be able to find these answers in your prescribed texts or on the internet.

You are also then required to investigate the similarities between the family of odd powered functions x^3, x^5, x^7 , and the family of even powered functions. eg x^2, x^4, x^6 .