

Functions 11

Chapter 1 Review Topics

Intro to Functions

$$f(x) = 2\sqrt{x+3} - 1$$

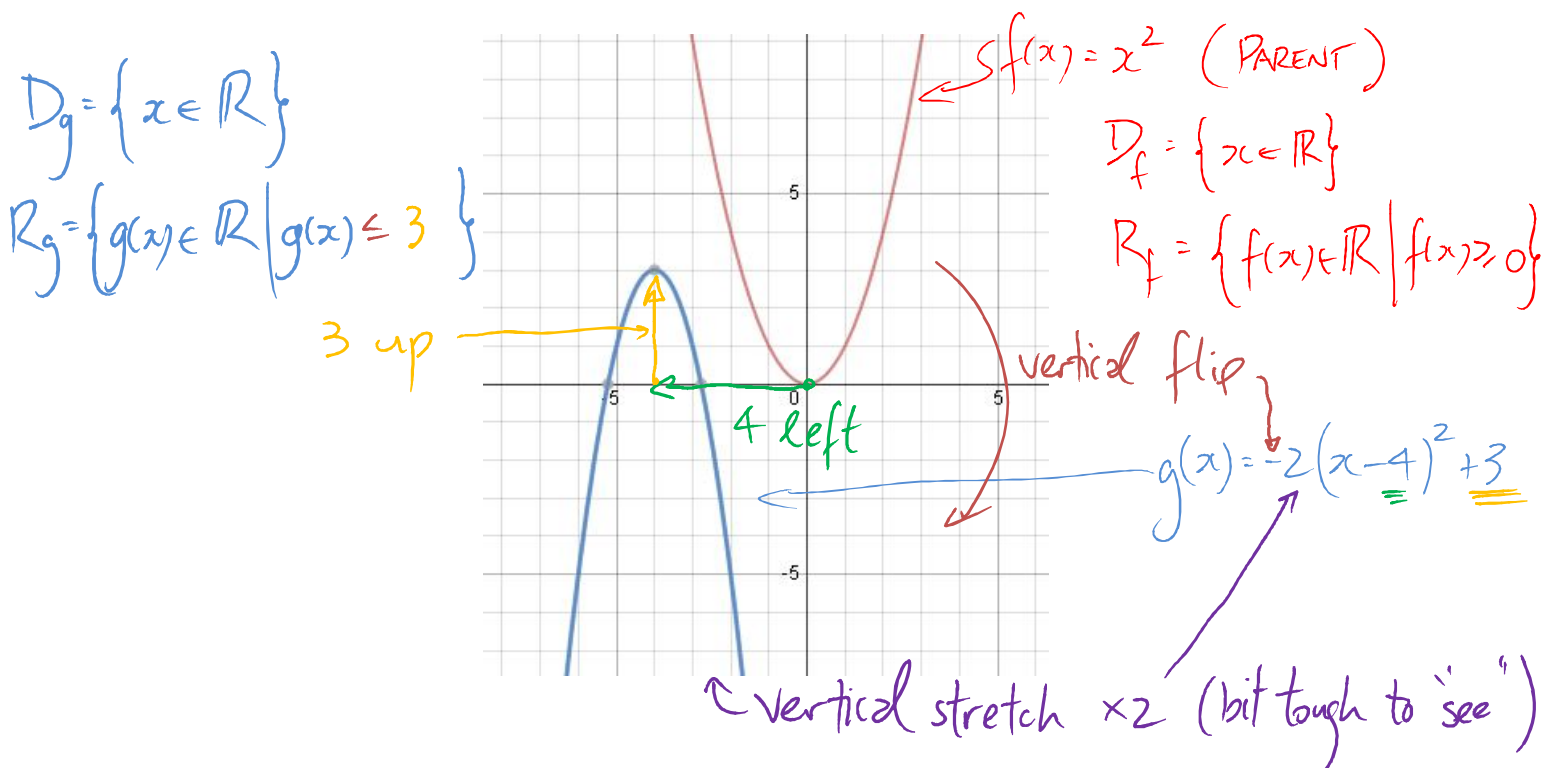
$$\Rightarrow f(6) = 2\sqrt{6+3} - 1$$

$$\Rightarrow f(6) = 5 \text{ giving the point on the graph } (6, 5)$$

Domain and Range

Parent Functions

Transformations



You are expected to know:

From Section 1.1 – Relations and Functions

- The definition of a function
- The Vertical Line Test
- Domain and Range

From Section 1.2 – Function Notation

- Be able to calculate functional values given a function and a domain value. For example:
Given $f(x) = 2(x-1)^2 + 3$, determine $f(2)$ (Ans: $f(2) = 5$)
- Understand the difference between domain and range values
- Be prepared to solve a word problem using functional notation (e.g. Example 1.2.5 in the notes)

From Section 1.3 & 1.4 – Parent Functions and Domain and Range

- The basic parent functions: Linear, Quadratics, Square Root Functions, Reciprocal Functions, and Absolute Value Functions
- Be able to state the domain and range of a relation given the sketch of its graph.
- Understand that real world problems using functions will require restricted domains and ranges (see examples 1.4.2, 1.4.3 and 1.4.4)

From Section 1.6 – 1.8 – Transformations of Functions

- To transform something is to change it (**TRANSFORMERS...ROBOTS IN DISGUISE**....you're welcome for having that song now stuck in your head)
- The three basic types of transformations and that they can be applied to both domain values and range values.
- Given some function you need to be able to recognize the parent function and state all the transformations being applied.
- Using transformations you will need to be able to sketch a parent function along with the associated transformed function on the same set of axes (see examples 1.8.5 and 1.8.6)

Practice Problems from the text:

All of your homework will help. Hopefully the following will too:

Pg. 76 – 77 #**1, 3** (hint: vertically flipped quadratic), **4, 5ab, 6, 7, 8** (use parent + transformations to help you!), **9, 11ab, 14, 15** (apply **horizontal transformations** to $x = 1$ (the domain value of the given point) and **vertical transformations** to $f(x) = 4$ (the functional value of the given point)), **16** (part a means “state the transformations”), **19** (a nice thinking question)