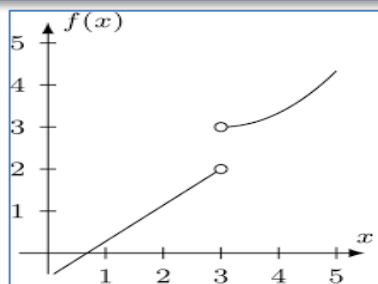


Goals



This week we are:

- Finding limits of functions
- Using limit theorems

Theoretical Components

Resources:

- Maths Quest Year 11 Chapter 9

Knowledge Checklist:

- what is a rate?
- constant rates
- variable rates
- average rates of change
- instantaneous rates of change
- interpret graphs that illustrate rates of change
- equations of tangents
- **what is a limit?**
- **evaluating limits**
- what is a gradient function?
- what is the x-intercept of a gradient function?
- power rule
- finding gradient functions by sketching
- finding gradient functions by using the rule
- finding gradient functions using your CAS

Practical Components

Maths Quest Year 11 Chapter 9 (see pdf – GC)

Ex 9A Introduction to limits

- Q's 1, 2, 3, 8a,c,f, 12b,d

Ex 9B Limits of discontinuous, rational and hybrid functions

- Q's 1, 2, 3, 7c, 8c, 9b, f

Investigation

See the following page

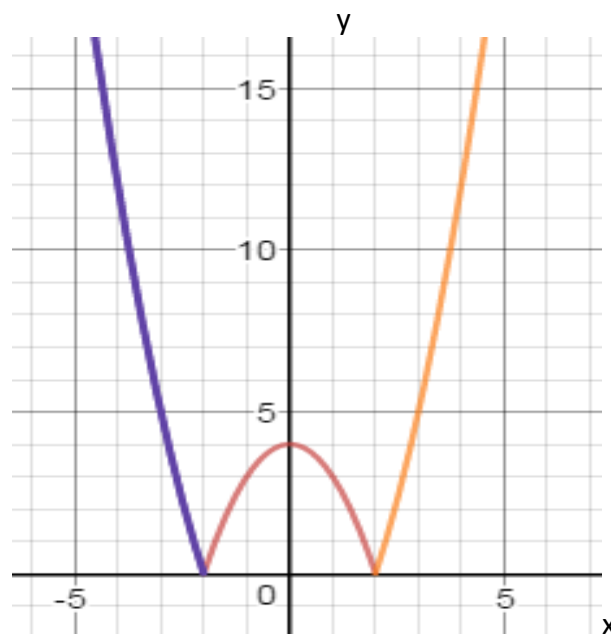
(20 marks – see rubric)



MM2 Week 10 Investigation

This is a plot of the following hybrid function $y = f(x)$ where:

$$f(x) = \begin{cases} x^2 - 4, & x \geq 2 \text{ and } x \leq -2 \\ 4 - x^2, & -2 < x < 2 \end{cases}$$



1) Does the limit exist at $x = -2$ or 2 ? Why or why not? Give a clear explanation.

2) Can you find the rate of change at $x = -2$ or 2 ? Why or why not? Give a clear explanation.