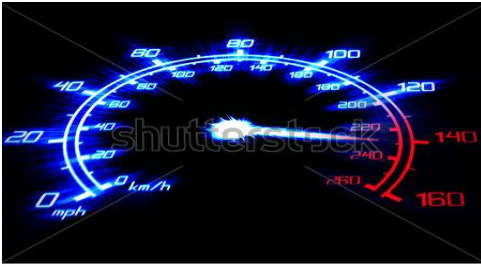


This week we are:

- Reviewing rate of change, gradient and key features of graphs
- Reviewing differentiation using power rule



Theoretical Components

Resources:

- Maths Quest Year 12 Chapter 7

Knowledge Checklist from last year:

- 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/normals
- 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
- sketching polynomials using stationary points
- finding maximum and minimum points and to solve problems in a practical context
- investigate speed, displacement and velocity
- primitive functions and applications

Practical Components

10 Quick Questions (collect printed handout)

Complete the Review Differentiation “Test Yourself”.

Investigation

Complete the two questions on the following page.

QFO

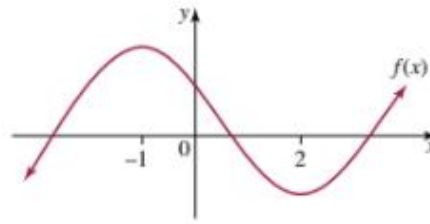
Quiz/Forum/Other

As Week 1 is orientation week go to each timetabled lesson.
Complete the Cambridge Task!

1.

a The figure at right has a positive gradient where:

- A $-1 < x < 2$
- B $x < -1$ only
- C $x > 2$ only
- D $x < -1$ and $x > 2$
- E $x > 0$



b The figure above has a negative gradient where:

- A $x > -1$
- B $x < 2$
- C $-1 < x < 2$
- D $x < -1$ and $x > 2$
- E $x < 0$

c The graph of the gradient function for the figure above is:

- A**

B

C

D

E

2. On the cartesian plane provided, sketch a continuous $y = f(x)$ having all the following properties:

- $f(-4) = 6, f(0) = 3, f(4) = 0,$
- $f'(-4) = f'(4) = 0,$
- $f'(x) < 0$ for $-4 < x < 4$ and,
- $f'(x) > 0$ for $x < -4$ and $x > 4.$

