Calculus – The concept

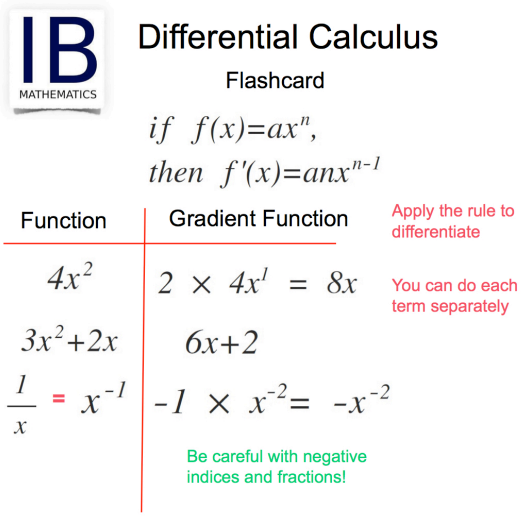
Checklist

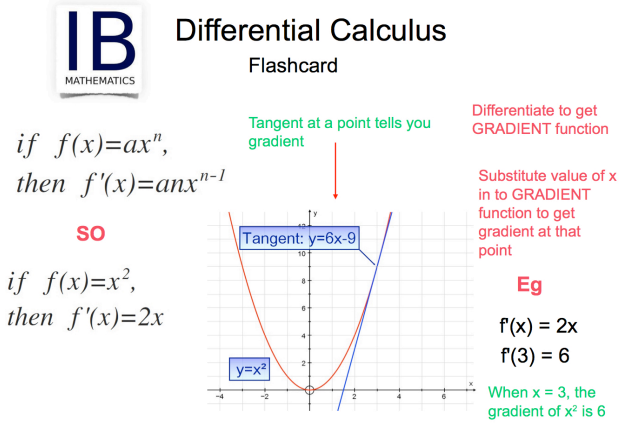
Use this space to keep track of your progress with this subtopic. Print and file this document together with those from different sub-topics in a file for quick reference.

Task	Complete (tick or cross)	Traffic Light (Red, amber or green)
Watch the video tutorials		
Check you know your calculators skills		
Review the slides		
Review/annotate the flashcards		
Complete the quiz		
Complete the exam style questions		
Check your solutions against the solution videos		
Review any remaining areas you need to.		

Flashcards

Screen shots of the flash cards





Exam Style Questions

Complete these questions on paper and then check your solutions against the video solutions on the website.

Question 1

Consider the function $f(x) = 3x^2 + 5x - 7$

a) Find $f'(x)$

b) Find

(i) $f'(2)$

(ii) $f'(-0.5)$

c) At which point does the function have a steeper gradient, x = -0.5 or x = 2 ?

Write answers here

Working……

(a) _____

(b) (i)_____(ii)_____

(c) _____

(6marks)

Question 2

For each of the following find $\frac{dy}{dx}$ and find the gradient of each when x = 3

a) $y = x^3 + 2x^2$

b) $y = \frac{2}{x}$

c) $y = \frac{2}{3}x^3 + 5x^{-2}$

Write answers here

Working……

(a) _____

(b) _____

(c) _____

(6marks)

Question 3

Consider the function $f(x) = x^4 + \frac{3}{2x^2} - 2x + 1$

a) Find $f(1)$

b) Find $f'(x)$

c) What is the gradient of the function when x = 1?

Another function is given by $g(x) = ax^2 + 2x$

d) Find $g'(x)$

e) For what value of a is $g'(1) = f'(1)$