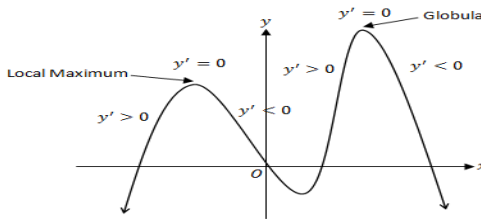


## Goals

By the end of this week, you should be able to:

- Use derivatives to solve practical problems
- Identify turning points and points of inflection
- Find the second derivative



## Theoretical Components

### STEP 1

Resources:

Maths Quest Year 12 Chapter 7 (printed copy),  
and Chapter 8 (pdf on Google Drive)

### Identifying Turning Points and Points of Inflection

Lesson

<https://mathspace.co/teach2/chapter/38962/1969/>

### Second Derivative

Lesson

<https://mathspace.co/teach2/chapter/38966/1974/>

## Second – Derivative Test

Let  $f'(c) = 0$  and let  $f''$  exist on an open interval containing  $c$ .

1. If  $f''(c) > 0$ , then  $f(c)$  is a relative minimum.
2. If  $f''(c) < 0$ , then  $f(c)$  is a relative maximum.
3. If  $f''(c) = 0$  then the test fails. Use the First Derivative Test.

## Practical Components

### STEP 2

Attempt the following questions and leave out the logarithmic problems

### Mixed Problems on Differentiation

Exercise 7J Q2 b,c,e,g,j,m

Q3 a,d,f,i, n,q, t, u

### Identifying Turning Points and Points of Inflection Quiz

<https://mathspace.co/solve/adaptiveworkout/38962/embar/#p/87377938/pt/34181>

### Mixed Problems on Differentiation and Applications

Exercise 8A Q1.b,g,k, Q2.b,g,k; Q7; Q12;Q13 Q17

Exercise 8C Q4 Q6; Q9-11

Exercise 8D Q1,Q3,Q6, Q8, Q10, Q12-15

## Investigation/Journal

In **Week 6** you are to sit an **In-Class Task** worth 20% (with your weekly investigations) in your double. It is an **"open book"** task given under test conditions. You will be allowed to bring in any of your notes and worked exercises since **Week 1** and, of course, your CAS calculator.

**QFO**

Quiz/Forum/Other

Remember to scan in when you come to the Maths Area and when you leave.