Section 2: Maximum and minimum points

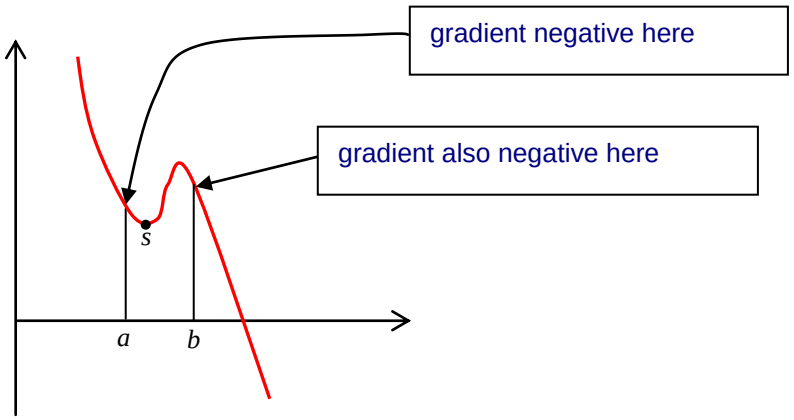
Crucial points

1. **Take care which side of the stationary point you test the gradient**
   When identifying whether a stationary point is a maximum or minimum by testing the sign of gradient either side of the stationary point, make sure you work from left to right, so you find the gradient at a value of x BEFORE the stationary point first, then at a value of x AFTER the stationary point.

   Remember:
   - For a maximum, the gradient is positive before the stationary point and negative after it
   - For a minimum the gradient is negative before the stationary point and positive after it

2. **When testing the gradient either side of a stationary point, make sure the points you test are close enough to the stationary point you are investigating**
   Otherwise, if there are two stationary points very close together, you may come to the wrong conclusion when identifying the stationary point.

   Example



   s is a minimum point between a and b, but the gradient is negative at a and negative at b. This error is caused by there being two stationary points close together, both of which are between a and b.