# G & H - Differentiation & Integration

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| **What are the derivatives of sin(kx) and cos(kx)?** | |  |  | | --- | --- | | **f(x)** | **f’(x)** | | sin(kx) | kcos(kx) | | cos(kx) | -ksin(kx) | |
| **What does it mean when f''(x) < 0, = 0, > 0? And how do you find points of inflection?** | * f’’(x) > 0 ⇒ concave ⇒ maximum point. * f’’(x) = 0 ⇒ **MAYBE** a point of inflection **YET** point of inflection ⇒ f’’(x) = 0.   + To make sure you have a point, check for a change in concavity either side of the point (if so, is a point of inflection) and consider points where the f''(x) is undefined. * f’’(x) > 0 ⇒ convex ⇒ minimum point. |
| **Using rectangles to integrate** |  |