G & H - Differentiation & Integration

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<td>What are the derivatives of sin(kx) and cos(kx)?</td>
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<tr><th>f(x)</th><th>f’(x)</th></tr>
<tr><td>sin(kx)</td><td>kcos(kx)</td></tr>
<tr><td>cos(kx)</td><td>-ksin(kx)</td></tr>
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<td>What does it mean when f''(x) < 0, = 0, > 0? And how do you find points of inflection?</td>
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f’’(x) > 0 ⇒ concave ⇒ maximum point.
f’’(x) = 0 ⇒ <u>MAYBE</u> a point of inflection <u>YET</u> 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.

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<td>Using rectangles to integrate</td>
<td>$$\lim_{n\to\infty}\sum_{i=1}^{n} y_i\delta x = \int_a^b y\,dx$$</td>
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