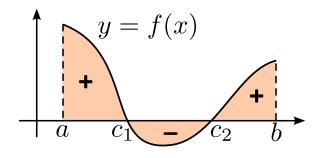
Integration: Applications Introduction to Engineering Mathematics

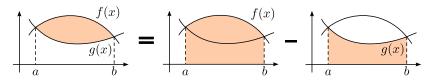
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Reminder: area under the curve



$${\rm Area} = \int_a^{c_1} f(x) dx - \int_{c_1}^{c_2} f(x) dx + \int_{c_2}^b f(x) dx.$$

Area between two curves



Recipe for finding the area

- Make a figure
- 2 Determine intersection points
- 3 Figure out which curve is upper/lower
- 4 Integrate

Example

Find the area bounded by $y = \sin x$, y = 0, and $x = \frac{3\pi}{2}$.

Example

Find the area of the region between the curves $y=x^2-2x$ and $y=4-x^2.$

Example

Find the area of the region between $x=12-y^2$ and y=-x.