Other Methods of Integration

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Announcements

1. Homework in MyOpenMath
2. Office hours tomorrow via Zoom.
3. Partial fractions quiz in Canvas (due Friday).

Other "Methods" of Integration

So we've discussed all of the methods that I expect you to be able to use on an exam.
But let's say you just don't want to use these methods, but you have a _____ at your disposal. Then a lot of the time, all we'll need is a _____.

Example

Suppose that you know from a table of integrals (see the back of your book) that

$$\int \sqrt{2ax - x^2}\, dx = \frac{x-a}{2}\sqrt{2ax - x^2} + \frac{a^2}{2}\cos^{-1}\left(\frac{a-x}{a}\right) + C$$

Use this to evaluate

$$\int e^x \sqrt{2e^x - e^{2x}}\, dx$$

Example

Example

Use the table of integrals in the back of your book to evaluate

$$\int \frac{x}{2+x}\,dx$$

Example

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Use the fact that

$$\int \left(ae^{ax} \ln(x+b) + \frac{e^{ax}}{x+b} \right) dx = e^{ax} \ln(x+b) + C$$

to evaluate

$$\int \left(\ln(\ln(x)+1) + \frac{1}{\ln(x)+1} \right) dx$$

Example