

### Tough Nut to Crack - Integration Problem

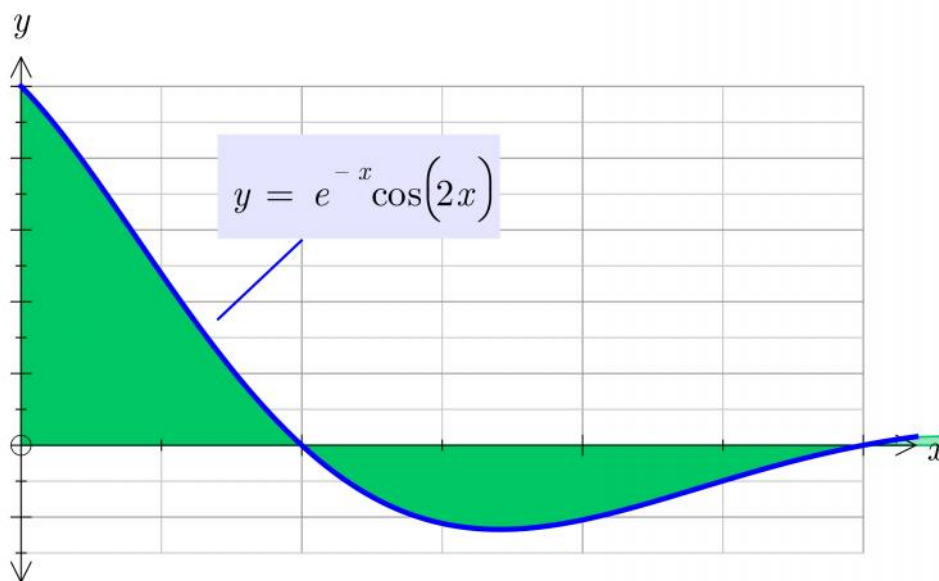
To be submitted by midday Wednesday 17th February 2016.

The prize is a mathematics book yet to be decided.

1. Determine the integral:

$$\int_0^{\pi} x^2 \sin^2(x) dx$$

2. Find the shaded area in the following diagram:



The solution needs to be word processed and emailed to me at [k.singh@herts.ac.uk](mailto:k.singh@herts.ac.uk)

The criteria for winning the prize is order of priority are:

- 1) The correct answer.
- 2) The best presented answer.