

- 1) (4 pts) Load the data file hw20.dat into MATLAB using

```
load hw20.dat
x = hw20(:,1);
y = hw20(:,2);
```

Integrate the data in this table using the trapezoidal rule, Simpson's Rule and the spline technique from Section 2.1 of the course notes. The exact value of this integral is  $\frac{\pi}{2}$ . Which of the three techniques gives the most accurate answer?

- 2) (8 pts) Consider the integral

$$I = \int_{-2}^2 x^2 e^{-rx} + (x-2)e^{rx} dx.$$

Generate a vector of  $r$  values from 0 to 2. Then generate a table of values for the integral above as a function of  $r$ . Use your table to estimate the value of the integral for  $r = 1.5$ .