Homework 10, Stat/Ma 320 Fall 2004

Due Nov. 11

1. Suppose Z is a random variable with a (standard) normal density, i.e.

$$f(t) = \frac{1}{\sqrt{2\pi}} e^{-\frac{t^2}{2}}$$

(a) Sketch a picture of the CDF of this distribution, even though the integration is too hard. You may find the approximation of the integral by visit the Java Applet:

`http://bcs.whfreeman.com/scc/content/cat_040/spt/normalcurve/normalcurve.html`

(Hint: integration = area under the curve.)

(b) Find $\int_{-\infty}^{\infty} t f(t) dt$ and $\int_{-\infty}^{\infty} t^2 f(t) dt$.