

Ami      Sheet 11 Maximilian von Sternberg

1. 1

2. (a)

$$\begin{aligned}\int_0^1 e^{-x^2} dx &\approx \int_0^1 1 - x^2 + \frac{1}{4}x^4 - \frac{1}{6}x^6 + \frac{1}{24}x^8 dx \\&= \left[ x - \frac{1}{3}x^3 + \frac{1}{20}x^5 - \frac{1}{42}x^7 + \frac{1}{216}x^9 \right]_0^1 dx \\&= 1 - \frac{1}{3} + \frac{1}{20} - \frac{1}{42} + \frac{1}{216} \\&\approx 0.6975\end{aligned}$$