

Financial Mathematics

Computation of PDFs

3200-1. Let X have a std normal distribution.

Find a PDF for e^{-X^2} .

3200-2. Let $g(x) := \frac{1}{\pi(1+x^2)}$.

Assume that g is a PDF for X .

Find a PDF for e^{3X^2-7} .

3200-3. Let X have a chi squared distribution, with two degrees of freedom.

Find a PDF for e^{3X^2-7} .

3200-4. Let X have a chi squared distribution, with four degrees of freedom.

Find a PDF for e^{3X^2-7} .

3200-5. Let $g_2(x) := \frac{1}{2\sqrt{2}} \left(1 + \frac{x^2}{2}\right)^{-3/2}$.

Assume that g_2 is a PDF for X .
(This means X has a “student t distribution, with two degrees of freedom”, see Topic 3300.)

Find a PDF for e^{3X^2-7} .

3200-6. Let $g_4(x) := \frac{3}{8} \left(1 + \frac{x^2}{4}\right)^{-5/2}$.

Assume that g_4 is a PDF for X .
(This means X has a “student t distribution, with four degrees of freedom”, see Topic 3300.)

Find a PDF for e^{3X^2-7} .