

$$f(x, y) = f(r(x, y)) = f(r)$$

$$F(y) = \int_{-\infty}^{\infty} f(r(x, y)) dx$$

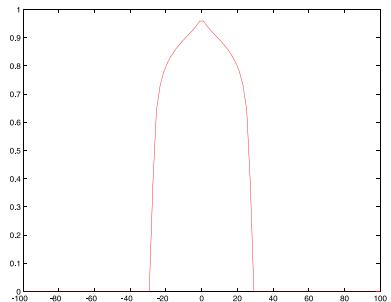
$F(y)$ = Abel Inversion of $(f(r))$

Case 1

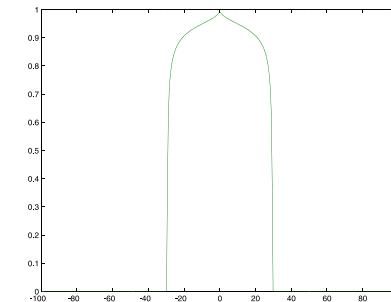
$$f(r) = 1, r \leq R.$$

$$F(y) = 2\sqrt{R^2 - y^2}, y \leq R.$$

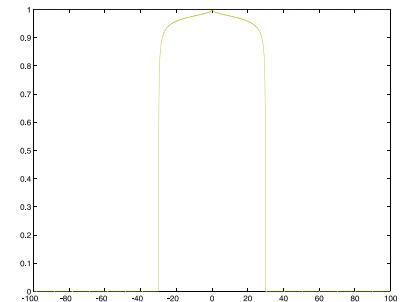
50 points



200 points



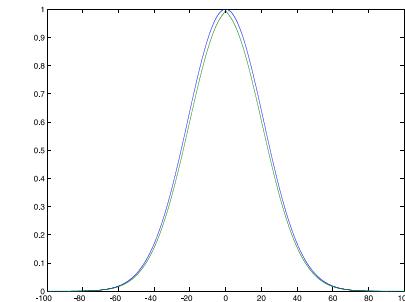
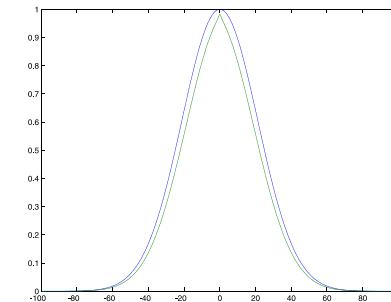
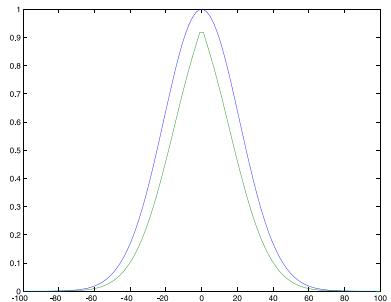
1000 points



Case 2

$$f(r) = e^{-r^2/R^2}$$

$$F(y) = \sqrt{\pi} R e^{-y^2/R^2}$$



Case 3

$$f(r) = e^{-r^2/R^2} - \frac{7}{10} e^{-r^2/(R/2)^2}$$

$$F(y) = \sqrt{\pi} R e^{-y^2/R^2} - \sqrt{\pi} R \frac{7}{10} e^{-y^2/(R/2)^2}$$

