

Augustin Legendre  
Calculus, Co and Analysis

~~Balzac~~ Victor Poncelet  
Traite des propriétés des figures  
essential concepts underlying projective geometry

Small town mayer

Balzac

Normal distribution bell curve

$$\int_{-\infty}^{\infty} e^{-x^2/2} dx$$

$$c = \int_{-\infty}^{\infty} e^{-y^2/2} dy$$

$$c^2 = \left( \int_{-\infty}^{\infty} \int_{-\infty}^{\infty} e^{-(x^2+y^2)/2} dx dy \right)^{1/2}$$

move polar coordinates  $x^2+y^2 = r^2$ ,  $dx dy = r dr d\theta$

$$\int_0^{\infty} \int_0^{2\pi} r e^{-r^2/2} d\theta dr = \int_0^{\infty} r e^{-r^2/2} \cdot 2\pi dr$$

$$\int_0^{\infty} r^2 e^{-r^2/2} dr$$

$$-e^{-r^2/2} \Big|_0^{\infty} = -e^{-\infty} - (-e^0) = 1 \cdot 2\pi$$

$$2\pi$$

Travis... concepts... geometry

2m 11 tom work

Bal 50 C

normal die first or best know

$$\int_0^{\infty} x^2 e^{-x^2} dx$$

$$= \frac{1}{2} \int_0^{\infty} x^2 e^{-x^2/2} dx$$

$$= \frac{1}{2} \left( \frac{1}{2} \int_0^{\infty} x^2 e^{-x^2/2} dx \right)$$

more color comparison

$$\int_0^{\infty} x^2 e^{-x^2/2} dx = \frac{1}{2} \int_0^{\infty} x^2 e^{-x^2/2} dx$$