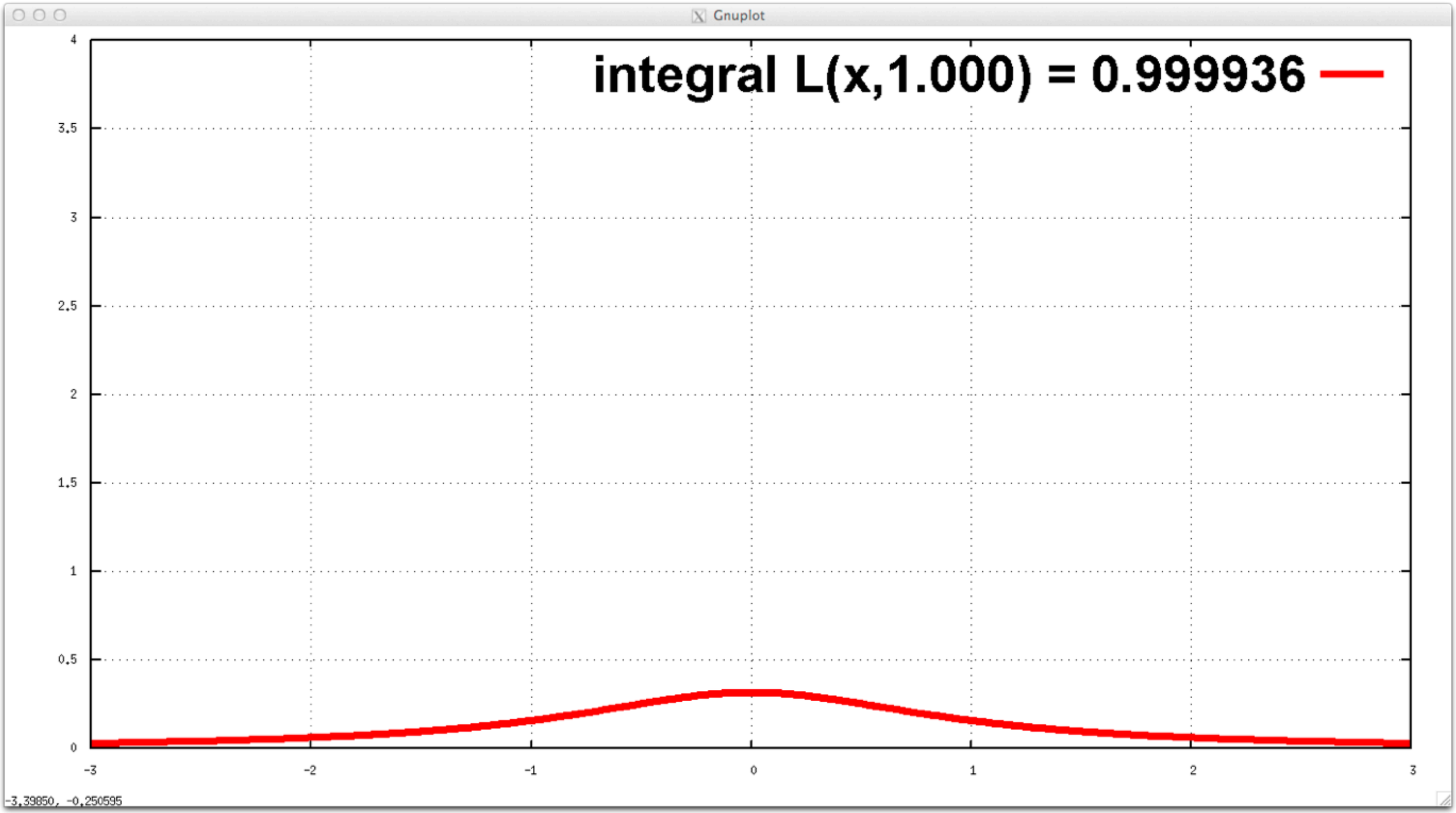
$$L(x, \gamma) = \frac{1}{\pi} \frac{\gamma}{x^2 + \gamma^2}$$



$$\int_{-\infty}^{\infty} L(x, \gamma)\, dx = \frac{1}{\pi} \left[\arctan\left(\frac{x}{\gamma}\right) \right]_{-\infty}^{\infty} = \frac{1}{\pi} \cdot 2 \cdot \frac{\pi}{2} = 1$$

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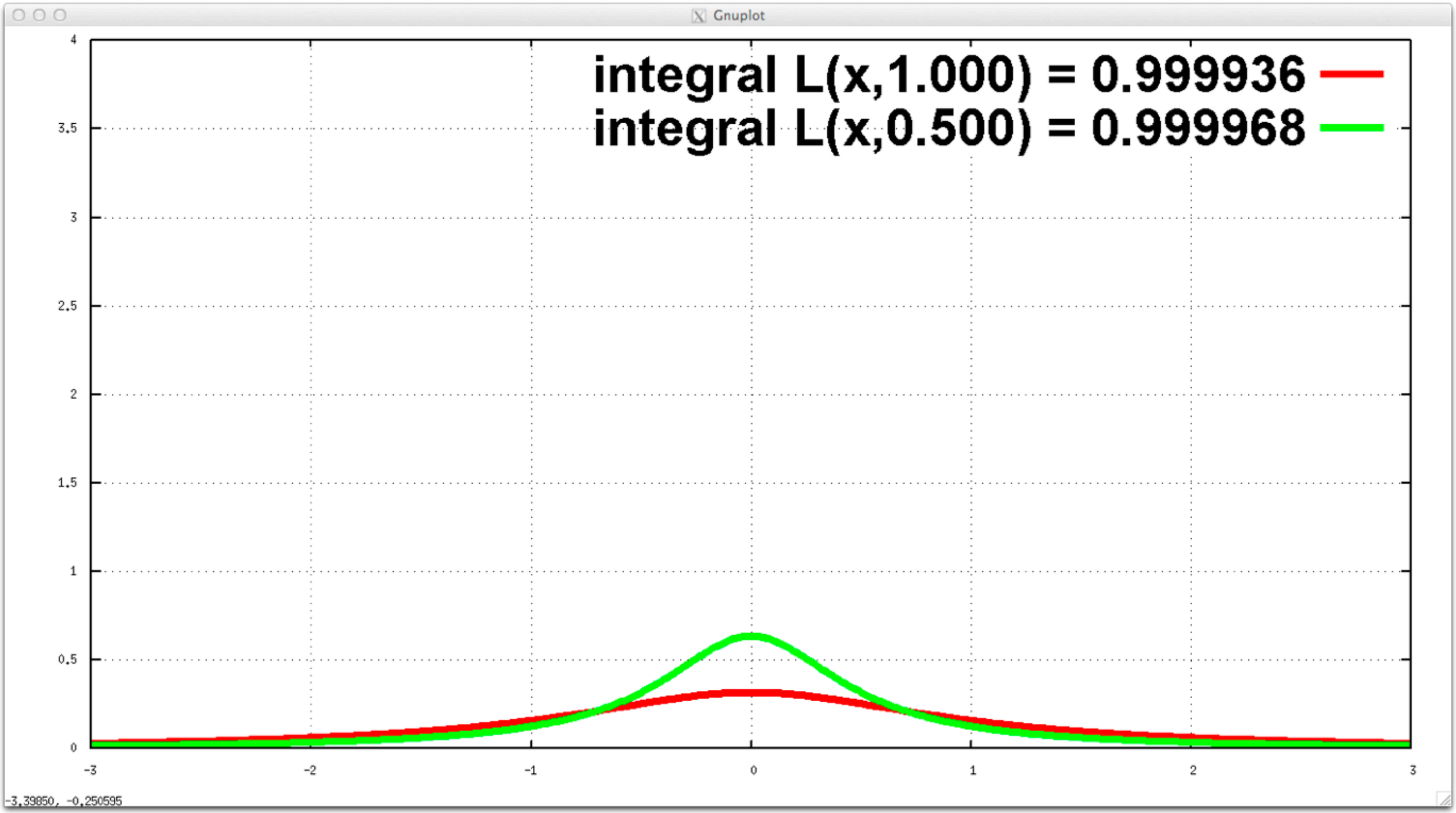

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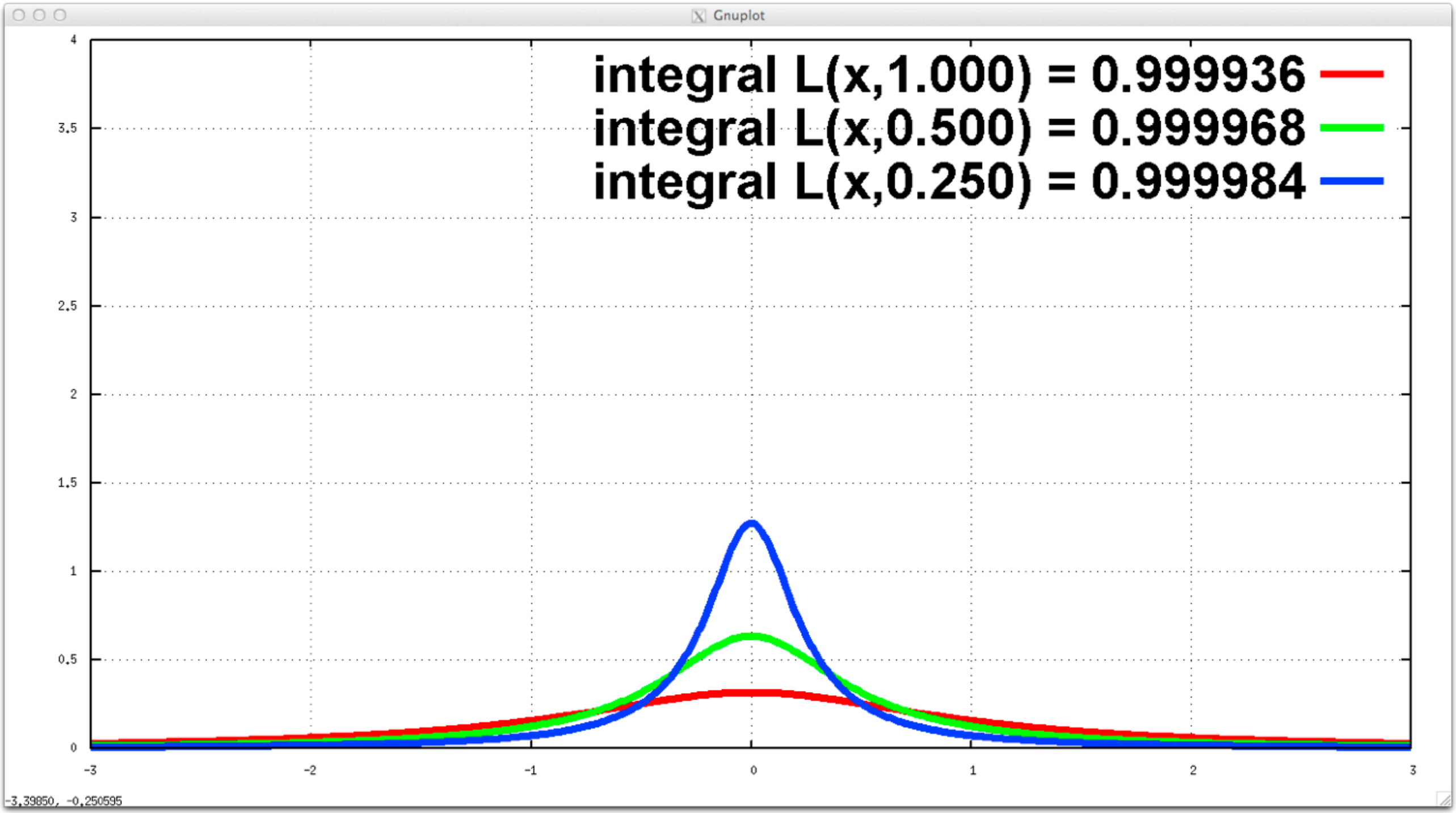

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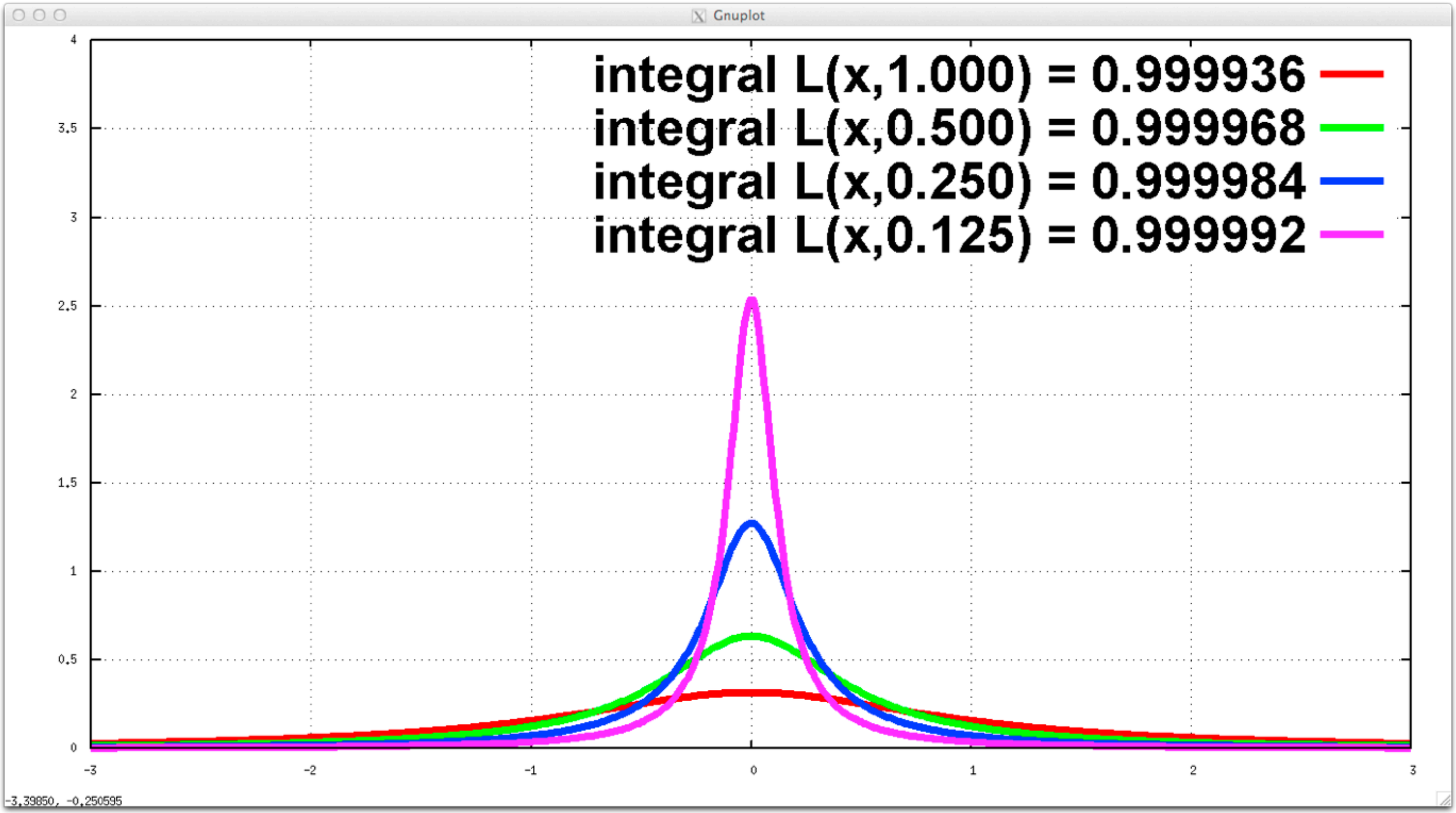

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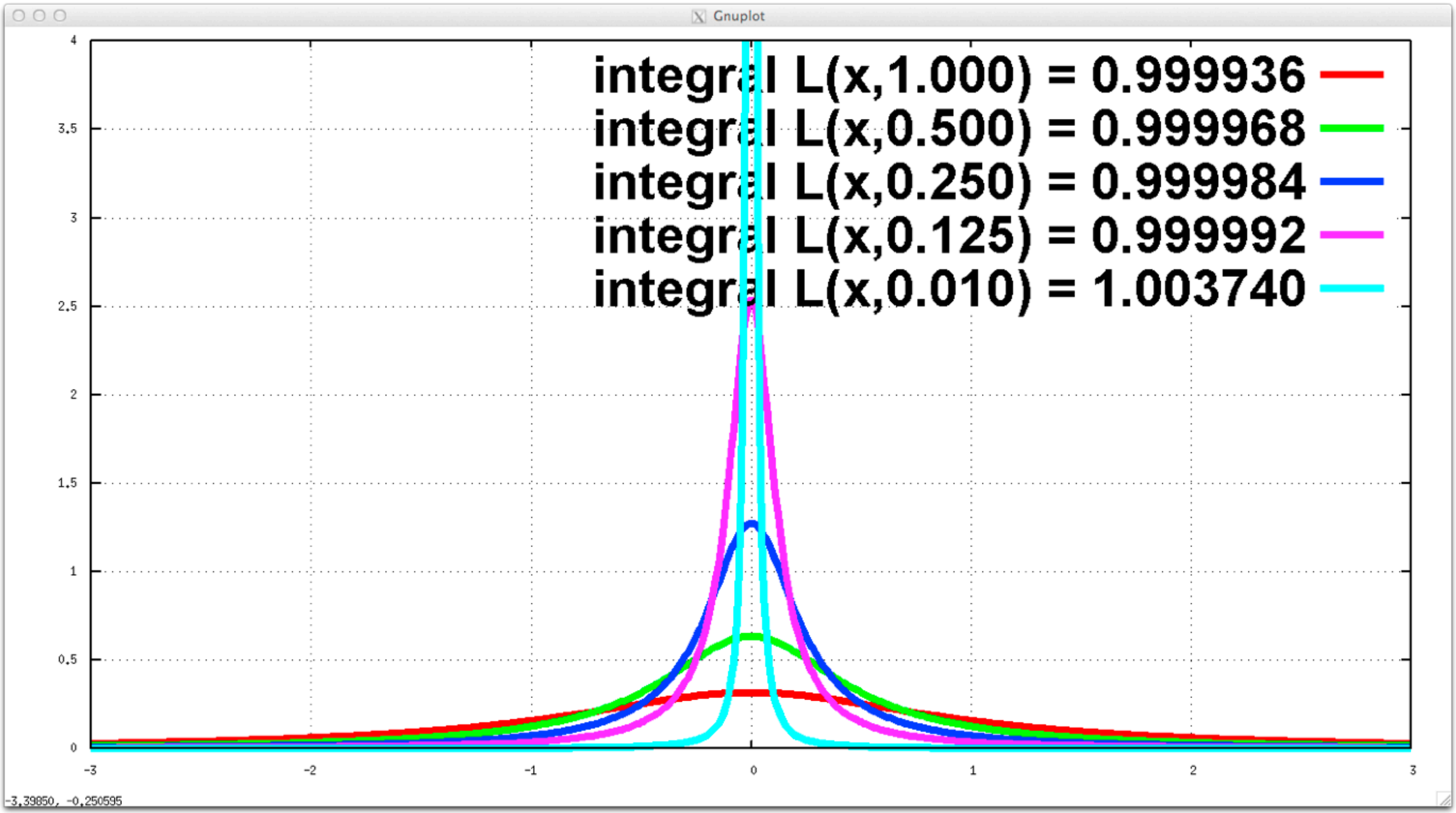

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