

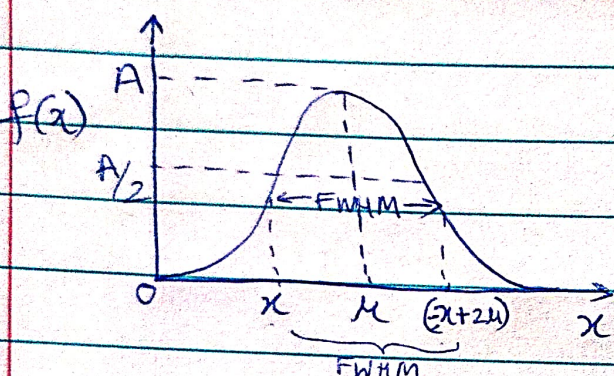
Gaussian f^n is

$$f(x) = A \cdot e^{-\left\{\frac{(x-\mu)^2}{2\sigma^2}\right\}}$$

$A \rightarrow$ max amplitude of $f(x)$

$\mu \rightarrow$ mean

$\sigma \rightarrow$ std. deviation



$$\begin{aligned} \text{FWHM} &= -x + 2\mu - x = 2(\mu - x) \\ &= 2|(\mu - x)| \end{aligned}$$

find the point x at $f(x) = A/2$

$$\Rightarrow \frac{A}{2} = A \cdot e^{-\left\{\frac{(x-\mu)^2}{2\sigma^2}\right\}}$$

$$\ln\left(\frac{1}{2}\right) = -\frac{(x-\mu)^2}{2\sigma^2}$$

$$-2 \ln(2) = -\frac{(x-\mu)^2}{\sigma^2}$$

$$(x-\mu)^2 = 2 \ln(2) \sigma^2$$

$$(x-\mu) = \pm \sigma \sqrt{2 \ln(2)}$$

$$\Rightarrow \text{FWHM} = 2 \left| \sigma \sqrt{2 \ln(2)} \right|$$

$$\text{FWHM} = 2.35 \sigma$$