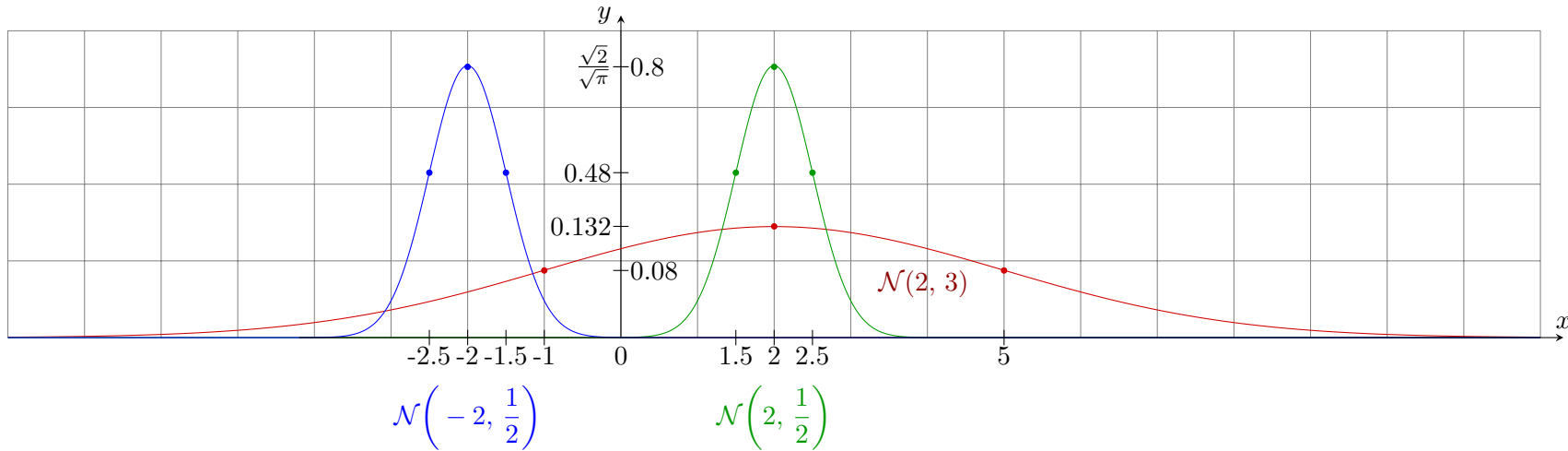


Normal Distribution $\mathcal{N}(\mu, \sigma)$



$$\mathcal{N}(2, 9) \rightarrow \mathcal{N}(2, 3) = \frac{1}{\sqrt{2\pi \cdot 9}} e^{-\frac{(x-2)^2}{2 \cdot 9}} \rightarrow \frac{1}{\sqrt{2\pi \cdot 3}} e^{-\frac{1}{2} \left(\frac{x-2}{3}\right)^2}$$

$$\mathcal{N}\left(2, \frac{1}{4}\right) \rightarrow \mathcal{N}\left(2, \frac{1}{2}\right) = \frac{1}{\sqrt{2\pi \cdot 0.25}} e^{-\frac{(x-2)^2}{2 \cdot 0.25}} \rightarrow \frac{1}{\sqrt{2\pi \cdot 0.5}} e^{-\frac{1}{2} \left(\frac{x-2}{0.5}\right)^2}$$

$$\underbrace{\mathcal{N}\left(-2, \frac{1}{4}\right)}_{\mathcal{N}(\mu, \sigma^2)} \rightarrow \underbrace{\mathcal{N}\left(-2, \frac{1}{2}\right)}_{\mathcal{N}(\mu, \sigma)} = \underbrace{\frac{1}{\sqrt{2\pi \cdot 0.25}} e^{-\frac{(x+2)^2}{2 \cdot 0.25}}}_{\mathcal{N}(\mu, \sigma^2)} \rightarrow \underbrace{\frac{1}{\sqrt{2\pi \cdot 0.5}} e^{-\frac{1}{2} \left(\frac{x+2}{0.5}\right)^2}}_{\mathcal{N}(\mu, \sigma)}$$

$$\mathcal{N}(\mu, \sigma^2) \rightarrow \mathcal{N}(\mu, \sigma) = \frac{1}{\sqrt{2\pi\sigma^2}} e^{-\frac{(x-\mu)^2}{2\sigma^2}} \rightarrow \frac{1}{\sqrt{2\pi}\sigma} e^{-\frac{1}{2} \left(\frac{x-\mu}{\sigma}\right)^2}$$