$$\boxed{P(X=k) = \binom{n}{k} \cdot p^k \cdot (1-p)^{n-k}}$$

$$X \sim B(\underbrace{3}_{n};\underbrace{\tfrac{1}{2}}_{p})$$

a) $P(X=2) = \binom{3}{2} \cdot \left(\frac{1}{2}\right)^2 \cdot \left(1-\frac{1}{2}\right)^{3-2}$

$$\boxed{\binom{n}{k} = \frac{n!}{k!(n-k)!}}$$

$$= \frac{3!}{2! \cdot (3-2)!} \cdot \frac{1}{4} \cdot \frac{1}{2} = \frac{3}{8} = \underline{\underline{0{,}375}}$$

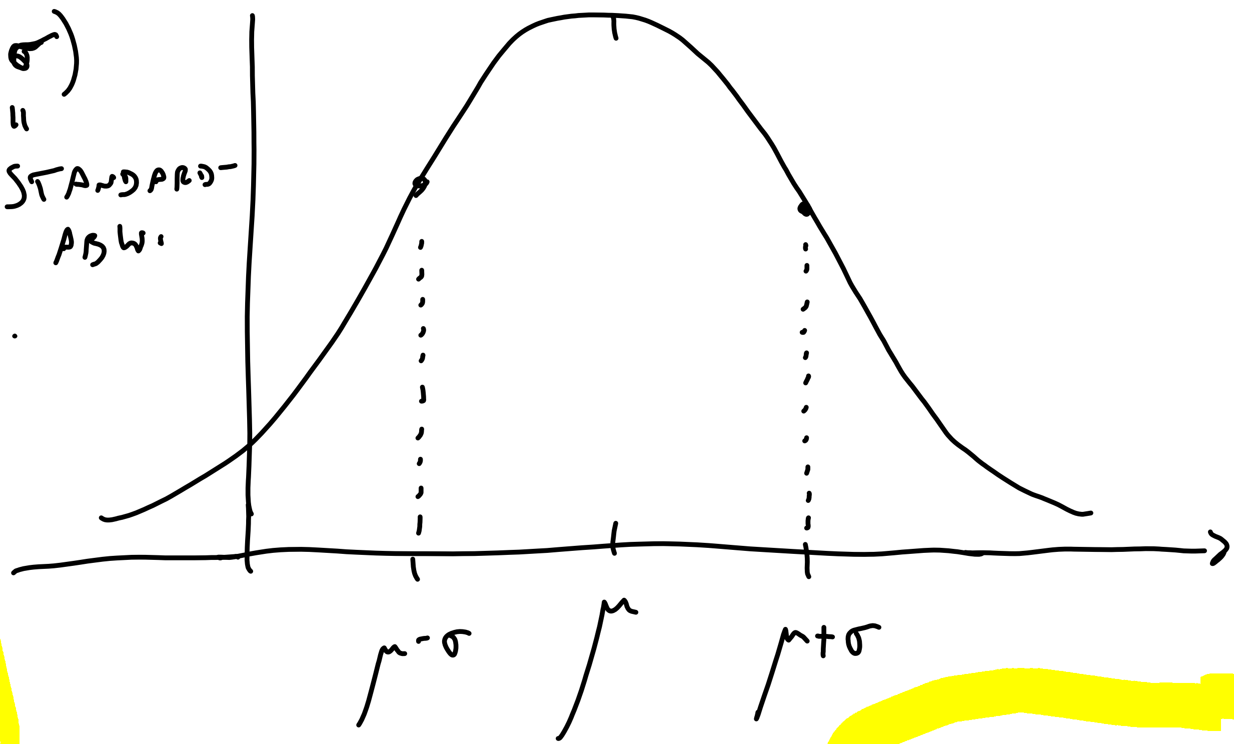
$$\boxed{n! = 1 \cdot 2 \cdot 3 \cdot \ldots \cdot n}$$

b) $P(X=1) = \binom{3}{1} \cdot \left(\frac{1}{2}\right)^1 \cdot \left(1 - \frac{1}{2}\right)^{3-1}$

$= 3 \cdot \frac{1}{2} \cdot \left(\frac{1}{2}\right)^2 = \underline{\underline{0{,}375}}$

$$N(\mu, \underbrace{\sigma^2}_{\text{VARIANZ}})$$

$$N(\mu, \underbrace{\sigma}_{\text{STANDARD-ABW.}})$$



$$X \sim N(\underbrace{1{,}8}_{\mu}; \overbrace{0{,}02^2}^{\sigma^2})$$

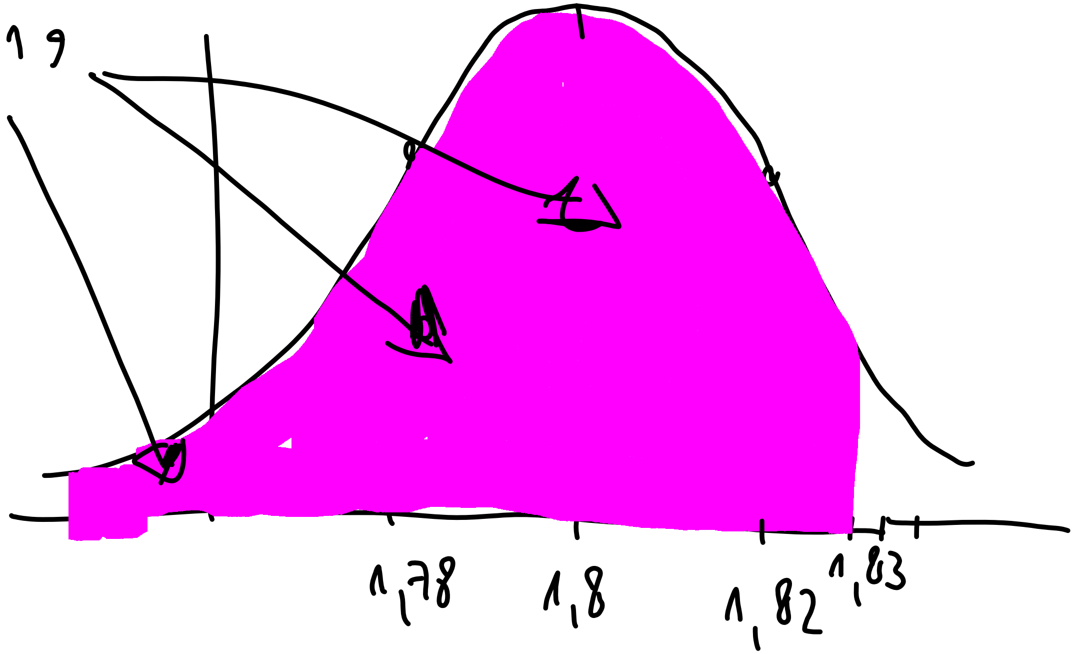
$$X \sim N(\underbrace{1{,}8}_{\mu}; \underbrace{0{,}0004}_{\sigma^2})$$

a) $P(X \leq 1{,}83) = P\left(\frac{X-\mu}{} \leq \frac{1{,}83-1{,}8}{0{,}02}\right)$

$$\boxed{X_{st} \sim N(0{,}1)}$$

$$= P(\overbrace{X_{st}}^{X_{st}} \leq 1{,}5) = \Phi(1{,}5)$$

$$= 0{,}93319$$



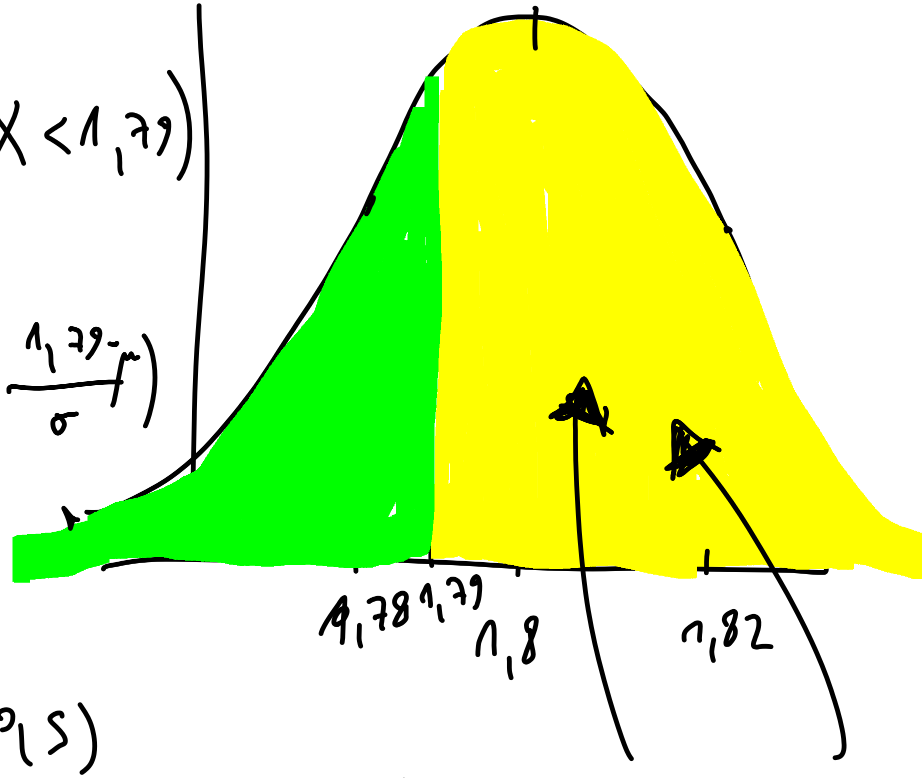
b) $P(X \geq 1{,}79) = 1 - P(X < 1{,}79)$

$= 1 - P(X \leq 1{,}79) = 1 - P\left(\frac{X-\mu}{\sigma} \leq \frac{1{,}79-\mu}{\sigma}\right)$

$= 1 - P\left(X_{St} \leq \frac{1{,}79 - 1{,}8}{0{,}02}\right)$

$= 1 - P(X_{St} \leq -0{,}5) = 1 - \phi(-0{,}5)$

$= 1 - [1 - \phi(0{,}5)] = \phi(0{,}5) = \underline{0{,}69146}$



$$\boxed{\Phi(-a) = 1 - \Phi(a)}$$

$$\boxed{P(a < X \leq b) = F(b) - F(a)}$$

c) $P(1{,}75 \leq X \leq 1{,}82)$

$$= P\left(\frac{1{,}75 - 1{,}8}{0{,}02} \leq \frac{X - \mu}{\sigma} \leq \frac{1{,}82 - 1{,}8}{0{,}02}\right)$$

$$= P(-2{,}5 \boxed{\leq} X_{ST} \leq 1)$$

$$= \phi(1) - \phi(-2{,}5)$$

$$= \phi(1) - [1 - \phi(2{,}5)]$$

$$= \phi(1) - 1 + \phi(2{,}5)$$

$= 0{,}84134 - 1 + 0{,}99379$

$= \underline{\underline{0{,}83513}}$