Note: For <u>any</u> distribution, $E[\bar{x}]=\mu$, and $Var(\bar{x})=\frac{\sigma^2}{n}$
where $\bar{x}$ is the mean of sample size n.

Hence $E[W_n]=0$, and $Var(W_n)=1$

"$\xrightarrow{d}$"

1) $\lim_{n\to\infty} G_n(x)=\Phi(x)$ for all x.

2) If $\lim_{n\to\infty} M_n(t)=M(t)$ on $(-\delta,\delta)$, ← (for some $\delta>0$)

then $W_n \xrightarrow{d} W$.

this is sufficient, but not necessary

3) When n is large,

$W_n \approx Z$

$\bar{X}_n \approx N(\mu, \frac{\sigma^2}{n})$

(Since $W_n \xrightarrow{d} Z \sim N(0,1)$