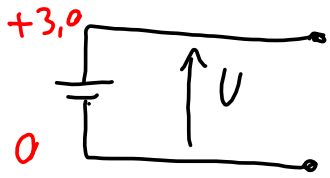
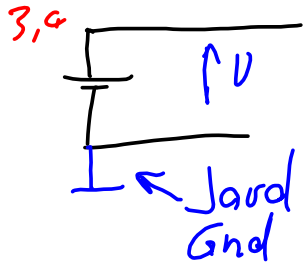
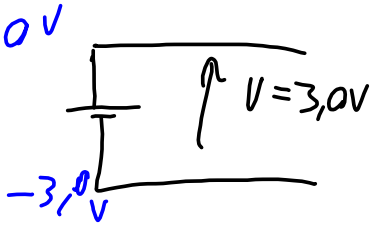


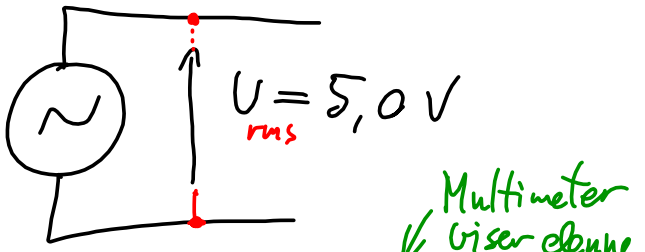
$V = 3{,}0\ V$



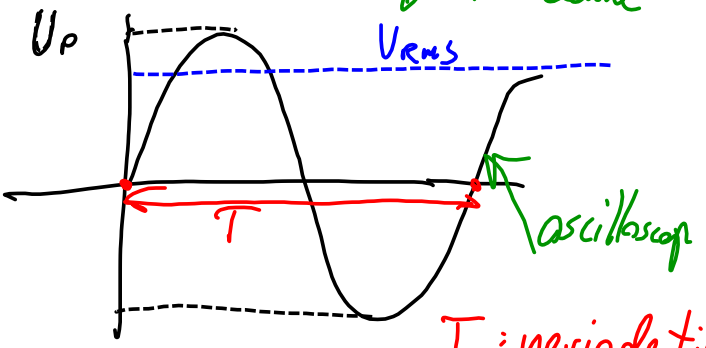
0V



Vekselspenning



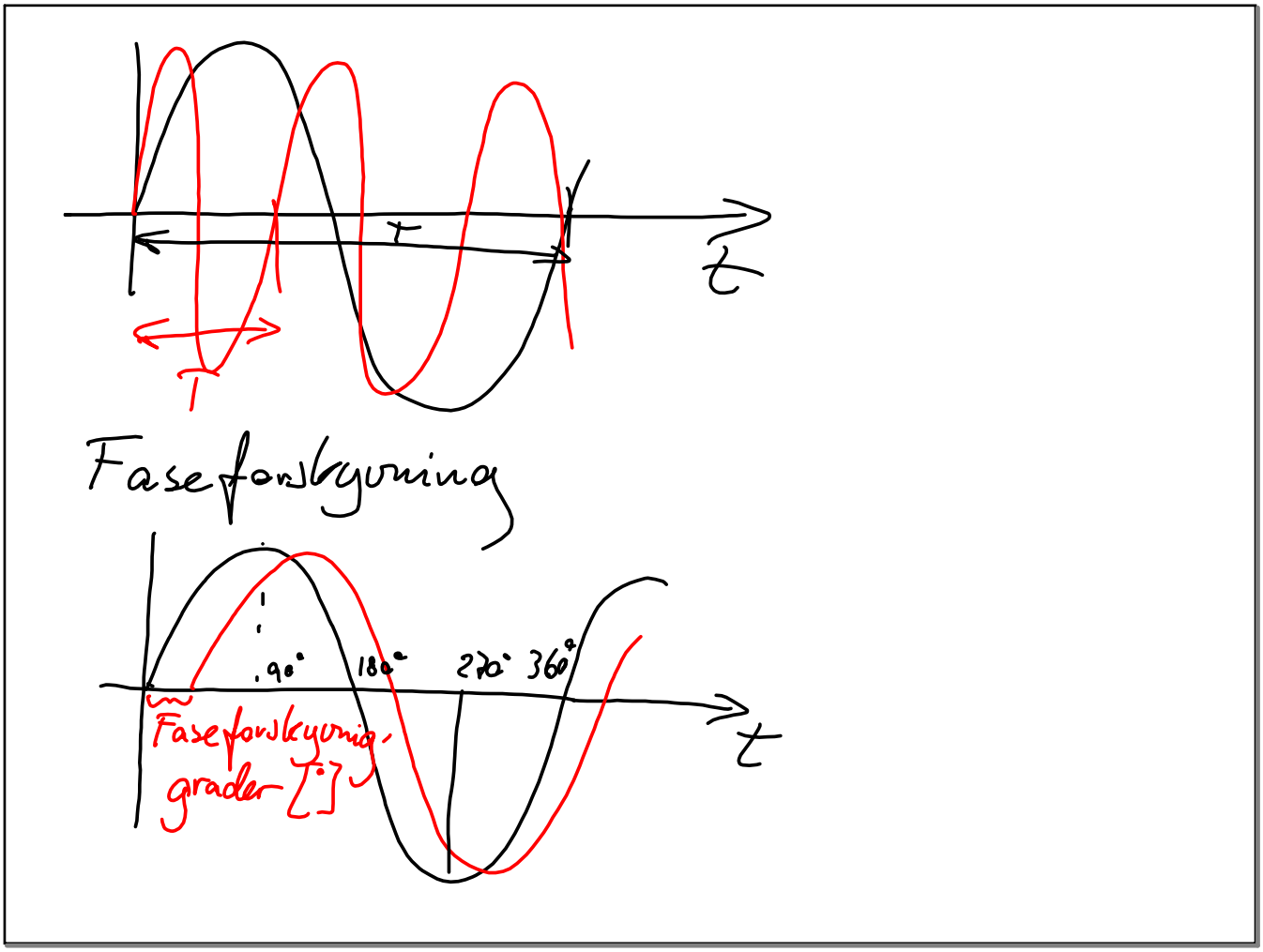
Multimeter viser denne

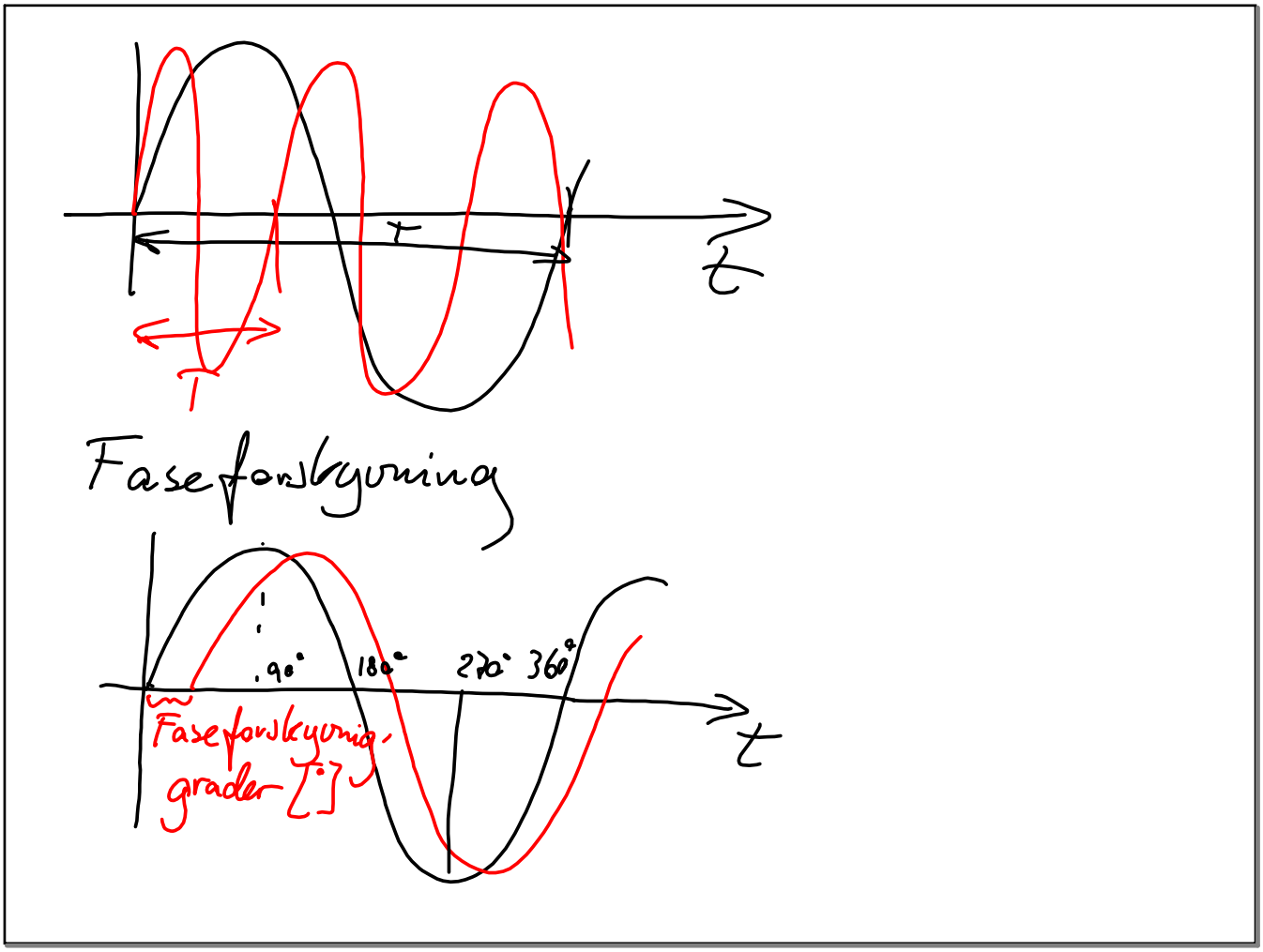


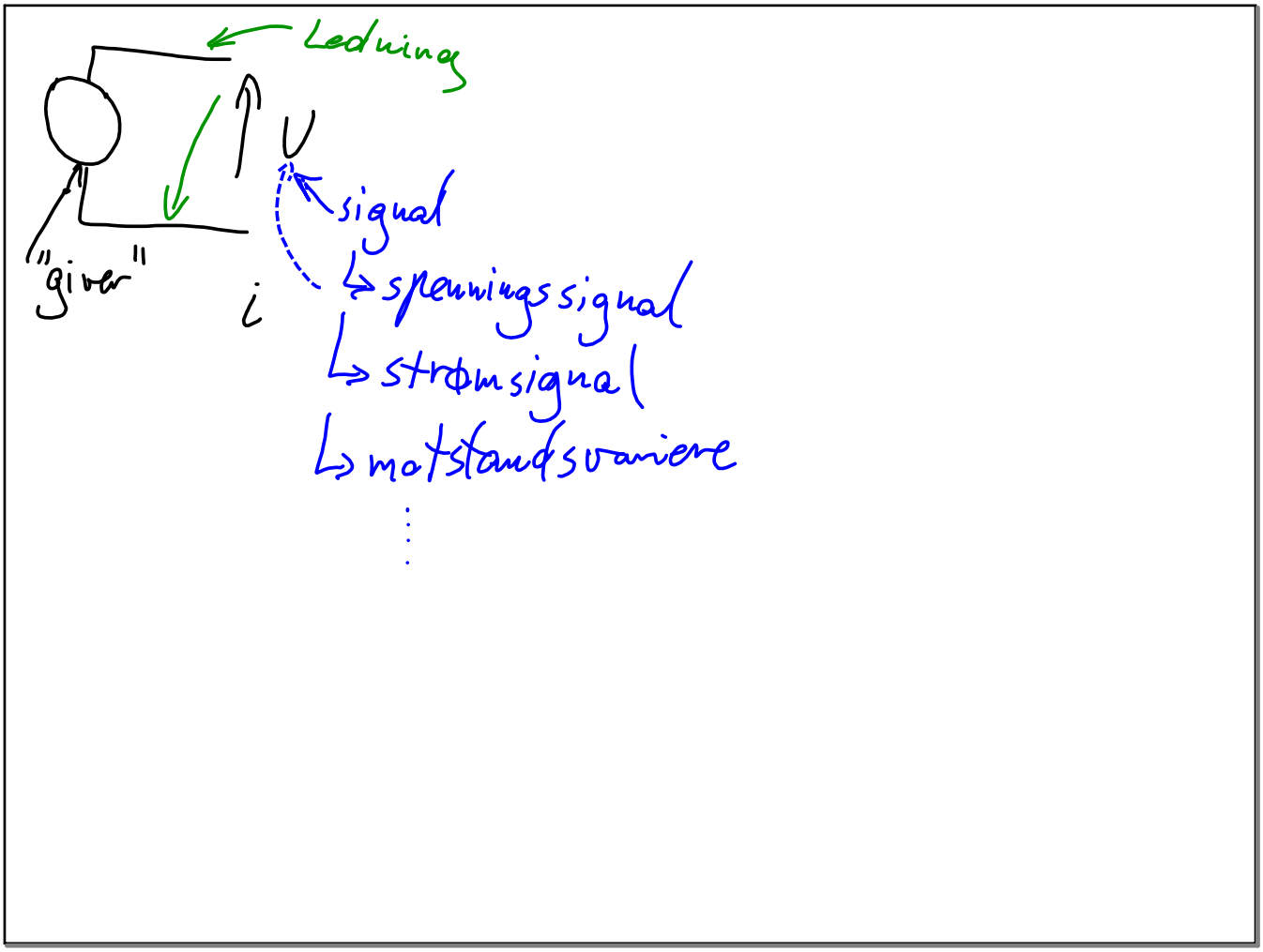
T : periodetid [s]

frekvens : f

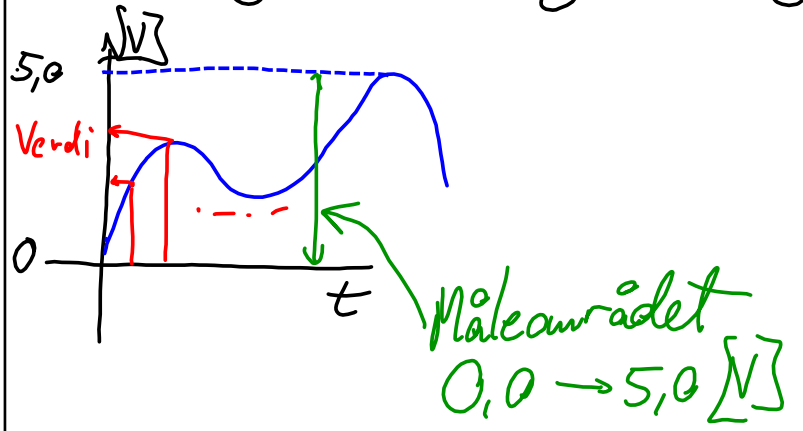
$f = \frac{1}{T_{[s]}} \times [Hz]$

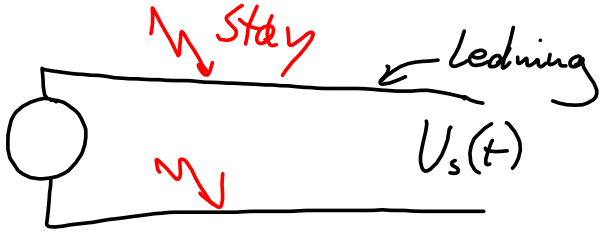

T
t
T
Fasefonskyvning
90°
180°
270°
360°
t
Fasefonskyvning, grader [°]

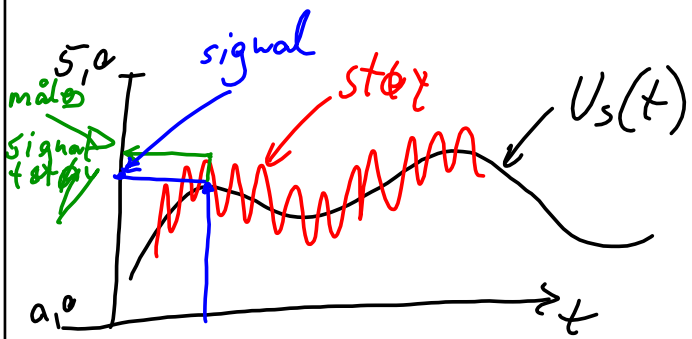

T
t
T
Fasefonskyvning
90°
180°
270°
360°
t
Fasefonskyvning, grader [°]


Ledning
U
signal
↳ spenningssignal
↳ strømsignal
↳ motstandsvariere
"giver"
i

Analoge – digitale signaler



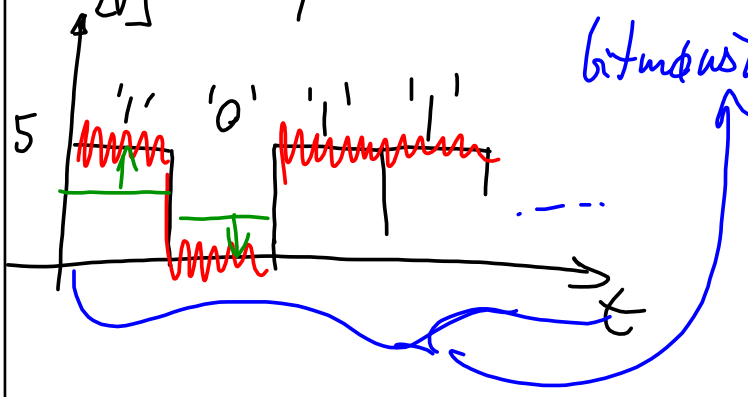




Analoge signaler kan få opp støy

Digitale signaler

Verdi : 0
[V] 1



Bitmønster → Bestemmer måleverdien

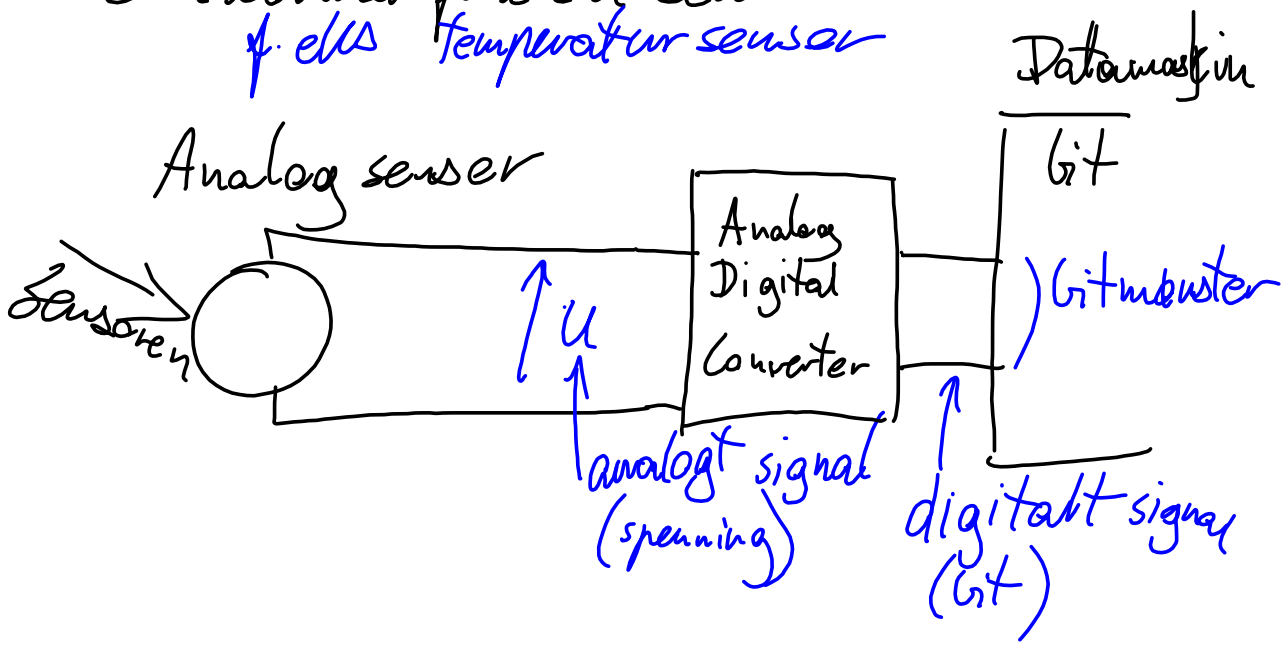
En bit må være definert
Spenning '1' : → 5,0 [V] '0' : → 0 [V]
→ 3,0 [V] → −3,0 [V]
→ +12,0 [V] → −12,0 V

Bithastighet : hvor lang tid bruker en bit

→ Digitale signaler "tåler" støy bedre

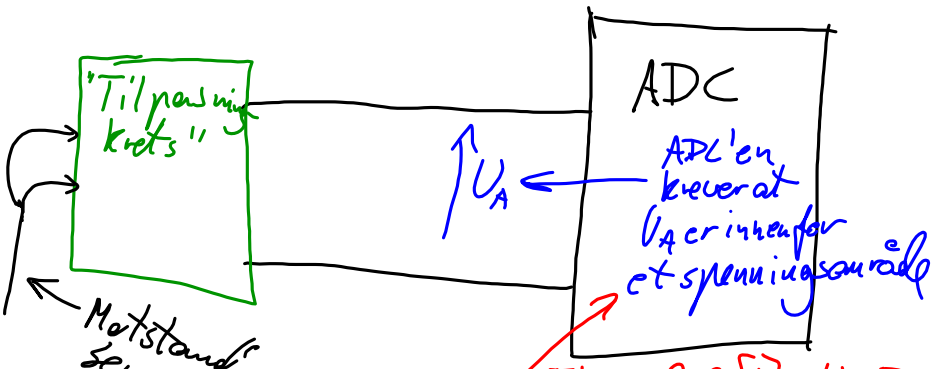
Målesystem

"Noe" skal måles
↳ f. eks temperatur
som kommer fra en sensor
f. eks temperatursensor



i datamaskinen:
Det digitale signalet gjøres om til temperatur
↳ software

Tilpasning av det analoge signalet



Eks: $0{,}0\,[V] \leq U \leq 5{,}0\,[V]$

Full scale ratio

Verdien i Ω

1) Temperaturområde? ← Bestemmer vi

2) Finner motstandsverdiene ← i datablad

Eks: (Viber bestemt / Datablad sier dette)

$-50^\circ C \rightarrow R_T = 200\,[\Omega] \rightarrow U_A = 0{,}0\,[V]$

$+40^\circ C \rightarrow R_T = 350\,[\Omega] \rightarrow U_A = 5{,}0\,[V]$

Tilpasningskretsen gjør dette

Bitverdien fra ADC'en er gitt av U_A:

Vi bruker 8bit ADC

$U_A = 0{,}0\,[V] \rightarrow 00000000 \leftarrow 00$ (bit mønster fra ADC)

$U_A = 5{,}0\,[V] \rightarrow 11111111 \leftarrow FF$

Vi vet: $00 \rightarrow -50^\circ C$

$FF \rightarrow +40^\circ C$

↑ SW leser disse verdiene SW skriver ut $X^\circ C$