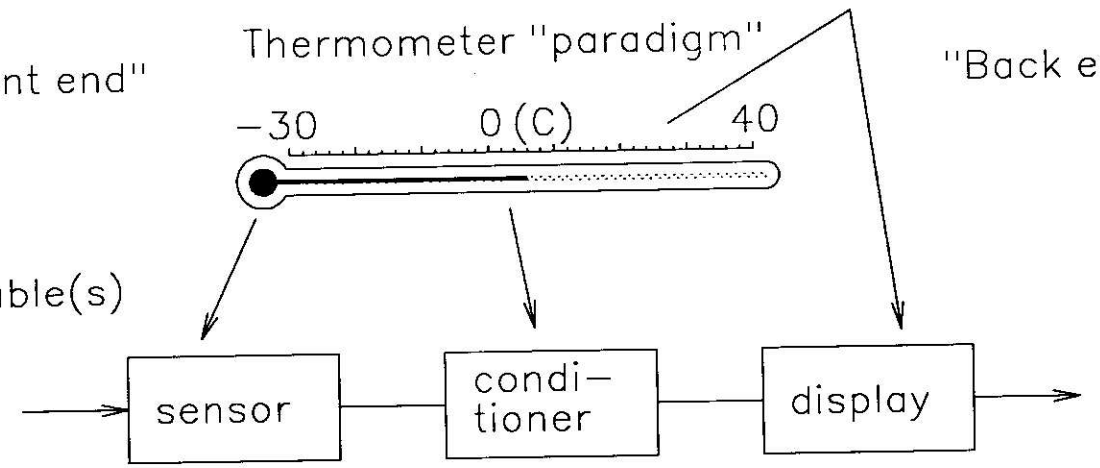


Input signal
Measureand
Observed variable(s)
Temperature
Pressure
Displacement
Velocity
Acceleration
Force
Voltage
Current
Fluid flow rate
pH
Frequency
Time

Output signal
Observer
Archive
Database
Postprocessor
Data record or log
Feedback signal

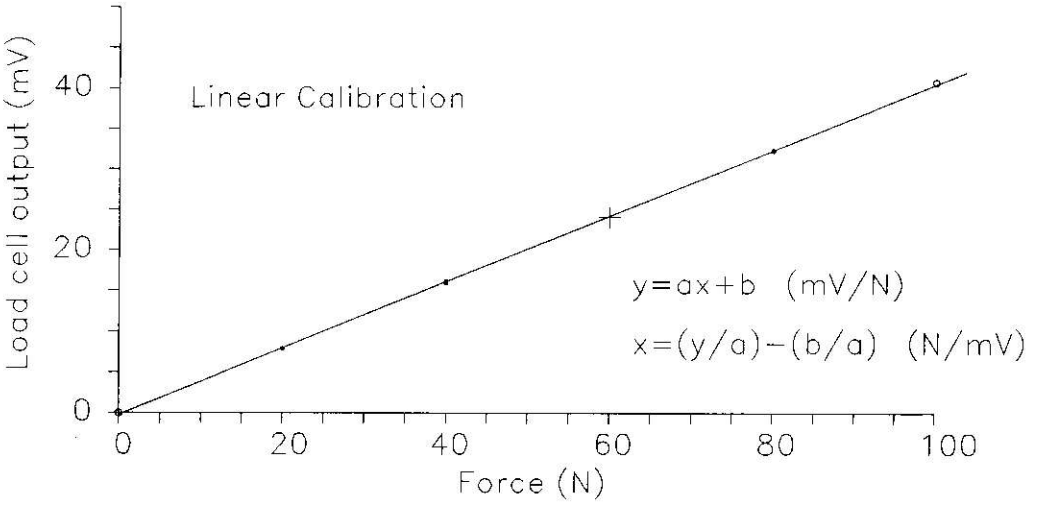
An instrument is an artificial sensory subsystem for creatures, natural and artificial.

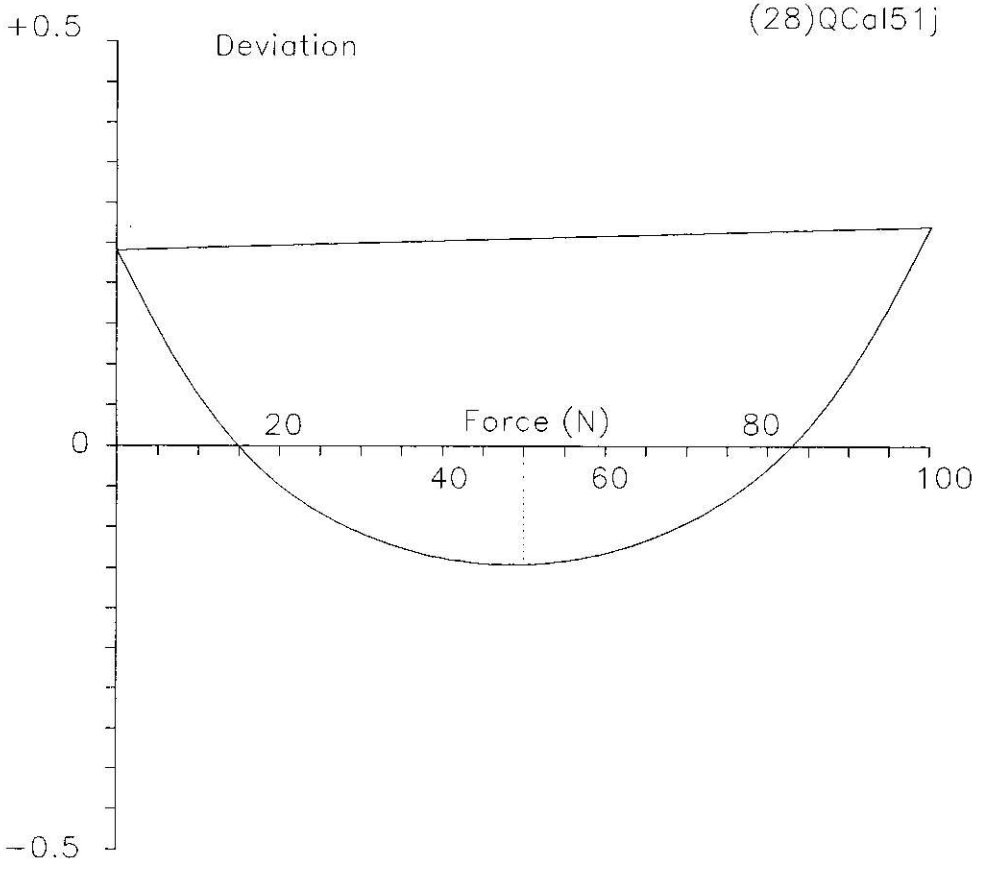
E=error
E_r=random error
E_s=systematic error
V_o=observed value
V_t=true value
V_a=average value
S=sensitivity

$E=V_o-V_t$
$E_r=V_o-V_a$
$E_s=V_a-V_t$

$S=d(V_o)/d(V_t)$

Problem
Do a parabolic fit on the V_a calibration curve you obtained for P2.25. Use the end points and one of maximum deviation. Comment on the coefficient of x^2 (N).


Load cell output (mV)
40
20
0
Linear Calibration
y=ax+b (mV/N)
x=(y/a)−(b/a) (N/mV)
0
20
40
60
80
100
Force (N)


+0.5
Deviation
(28)QCal51j
0
20
Force (N)
80
40
60
100
−0.5