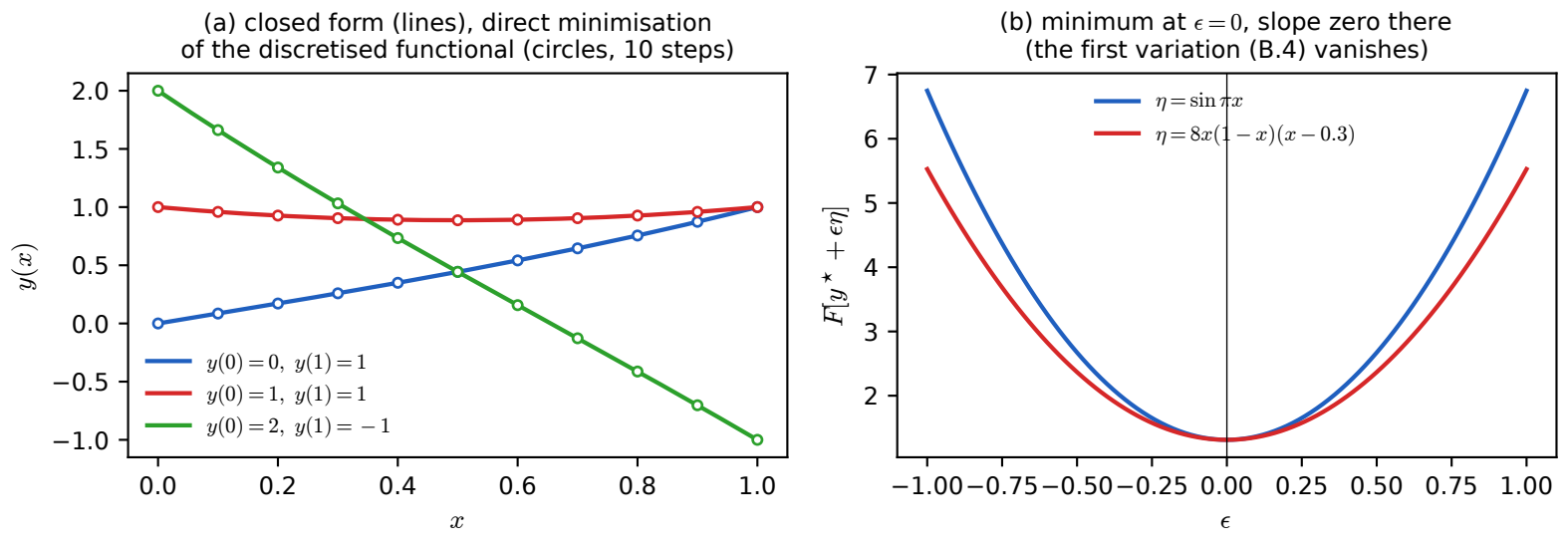

(a) closed form (lines), direct minimisation
of the discretised functional (circles, 10 steps)
$y(x)$
x
$y(0)=0,\ y(1)=1$
$y(0)=1,\ y(1)=1$
$y(0)=2,\ y(1)=-1$
(b) minimum at $\epsilon=0$, slope zero there
(the first variation (B.4) vanishes)
$F[y^\star+\epsilon\eta]$
ϵ
$\eta=\sin\pi x$
$\eta=8x(1-x)(x-0.3)$