?
?

$$\min_x f(x) s.t. x \in X.$$

(1)

$f :^n \to$
$X \subset^n$
?
$f :^n \to$
*sub-
d-
if-
fer-
en-
tially
reg-
u-
lar*
$x \in^n$
$epi(f) := \{(x, \alpha) \in^n \times \mid \alpha \geq f(x)\}$

$\bar{x}, f(\bar{x})$
f
?
$\|f_x -$
$f(x)\| \leq$
$\sigma_x,$
f_x
$f(x)$
σ_x
??
??
$\bar{\sigma} \geq$
$\sigma_x \geq$
$-\theta_x \geq$
$-\bar{\theta}$
$f_x \in$
$[f(x) -$
$\bar{\theta}, f(x)+$
$\bar{\sigma}]$
$\bar{\sigma}$
$\bar{\theta}$
ε
?
$g \in^n$
$\partial f(x)$
$\theta \geq$
0
$x \in$
$\partial f(x)+$
$B_\theta(0) =:$
$\partial_{[\theta]} f(x)$
$\partial f(x)$
f
$g_x \in \partial_{[\theta]} f(x) \Leftrightarrow g_x \in \partial(f + \theta\|\cdot - x\|)(x)$

?
$f(x)$
f
x
$\partial_{[\varepsilon]} f(x)$
ε
$f(x)$
not
ε

$\partial_\theta f(x) \subset \partial_{[\theta']} f(x)$

θ'
θ
θ'
?
$\sigma_j| \leq$
$\bar{\sigma}, \bar{\sigma} >$
$0 and 0 \leq$
$\theta_j \leq$
$\bar{\theta} \forall j \in$
$J^k and \forall k.$
f_j
g_j
f_{x^j}
g_{x^j}
j
J^k
k
$\hat{f}_k$
g_j
g_j
e_j^k
?
??
??