(a)

$k_0 = 0$

$k_1 = \phi(k_0, k_2)$
$(k_1 < 100)?$

f

$k_f = k_1 \cap [100, +\infty]$
print k_f

t

$k_t = k_1 \cap [-\infty, 99]$
$i_0 = 0$
$j_0 = k_t$

$i_1 = \phi(i_0, i_2)$
$j_1 = \phi(j_0, j_2)$
$(i_1 < j_1)?$

t

$i_t = i_1 \cap [-\infty, \mathbf{ft}(j_1)-1]$
$j_t = j_1 \cap [\mathbf{ft}(i_1), +\infty]$
$i_2 = i_t + 1$
$j_2 = j_t - 1$

f

$k_2 = k_t + 1$

(b)

$I[i_0] = [0, 0]$
$I[i_1] = [0, 99]$
$I[i_2] = [1, 99]$
$I[i_t] = [0, 98]$
$I[j_0] = [0, 99]$
$I[j_1] = [-1, 99]$
$I[j_2] = [-1, 98]$
$I[j_t] = [0, 99]$
$I[k_0] = [0, 0]$
$I[k_1] = [0, 100]$
$I[k_2] = [1, 100]$
$I[k_t] = [0, 99]$
$I[k_t] = [100, 100]$