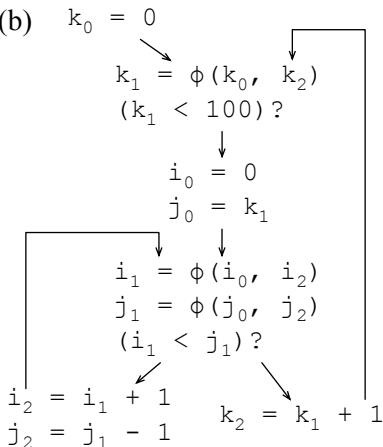(a)
```
k = 0
while k < 100:
  i = 0
  j = k
  while i < j:
    i = i + 1
    j = j - 1
  k = k + 1
```

(b)

(c)
```
k₀ = 0
k₁ = φ(k₀, k₂)
i₀ = 0
j₀ = k₁
i₁ = φ(i₀, i₂)
j₁ = φ(j₀, j₂)
i₂ = i₁ + 1
j₂ = j₁ - 1
k₂ = k₁ + 1
```

(d)
$$I[i_0] = [0, 0]$$
$$I[i_1] = [0, +\infty]$$
$$I[i_2] = [1, +\infty]$$
$$I[j_0] = [0, +\infty]$$
$$I[j_1] = [-\infty, +\infty]$$
$$I[j_2] = [-\infty, +\infty]$$
$$I[k_0] = [0, 0]$$
$$I[k_1] = [0, +\infty]$$
$$I[k_2] = [1, +\infty]$$