

(a)

$$a = 1$$

$$b = 9$$

$$\text{while } b > 0$$

$$c = 4 \times a$$

$$b = b - c$$

(b)

$$l_1: a = 1$$

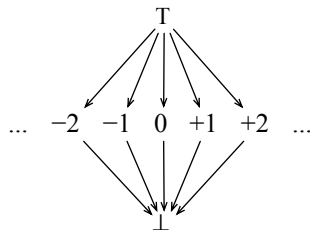
$$l_2: b = 9$$

$$l_3: (b < 0)?$$

$$l_4: c = 4 \times a$$

$$l_5: b = b - c$$

(c)



(d)

$$a = 1 \longrightarrow b_0 = 9$$

$$b_1 = \phi(b_0, b_2)$$

$$(b_1 < 0)?$$

$$c = 4 \times a$$

$$b_2 = b_1 - c$$

(e)

$$[a] = 1$$

$$[b_0] = 9$$

$$[b_1] = [b_0] \wedge [b_2]$$

$$[c] = 4 \times [a]$$

$$[b_2] = [b_1] - [c]$$