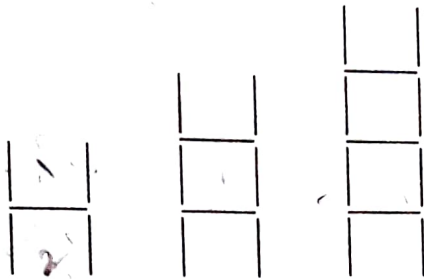5. In each of the following patterns, construct the next figure.

  (i) In each case, if n denotes the number of figures and F denotes the number of matchsticks used, find F in terms of n.

  (ii) Also find, in each case, how many matchsticks are required to make the :
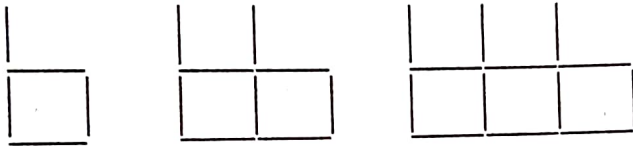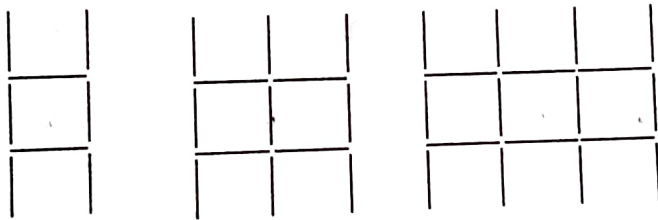16th figure and 30th figure.

(a)

$3n + 1$

$= (3 \times 16) + 1$

$= 48 + 1 = 49$

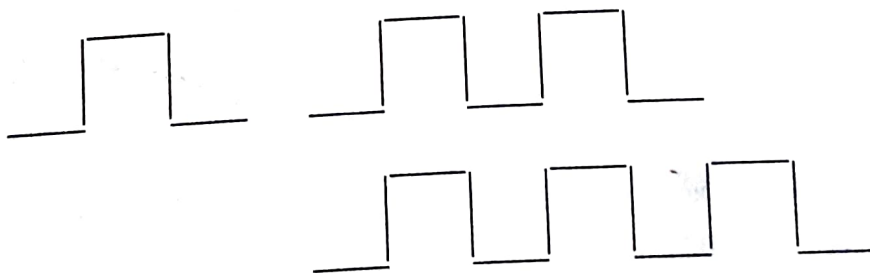(b)

(c)

(d)

(e)

(f)