



**Descobrir as Figuras que Faltam:**  
**Série de Exercícios Inspirados em Desenhos Tradicionais dos**  
**Quiocos do Nordeste de Angola e dos Tamil do Sul da Índia<sup>1</sup>**

Paulus Gerdes

O leitor certamente conhece exercícios aritméticos do tipo: “Procure os números que faltam”. Por exemplo:

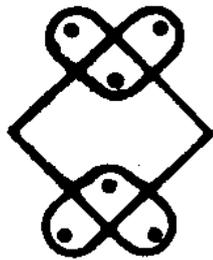
- a) 2 4 6 6 8 10 10 12 14 .. ..
- b) -1 1 5 11 .. ..
- c) 2 .. 8 16 .. 64 ..

Como variante sobre este tema, apresentaremos neste artigo uma série de exercícios geométricos, em que se pede para procurar as figuras que faltam. Em todos os casos trata-se de uma única linha fechada que se cruza muitas vezes consigo mesma e que abraça todos os pontos duma rede de pontos. Experimente.

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<sup>1</sup> Digitalizado por Edson Pereira Barbosa e Sílvio César Otero Garcia.

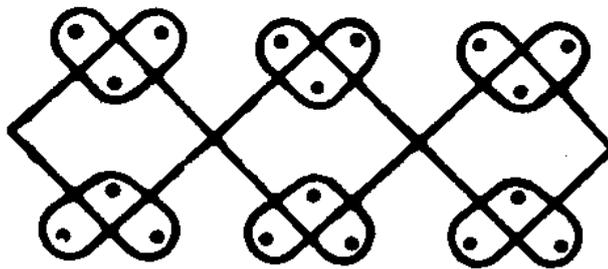
01.



A

?

B

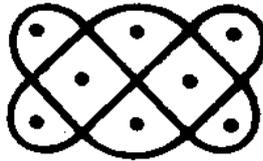


C

?

D

02.



A

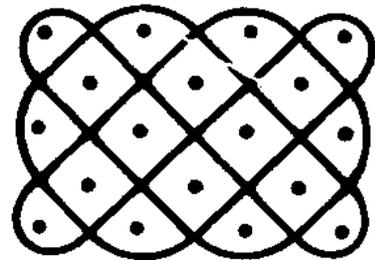
B

?

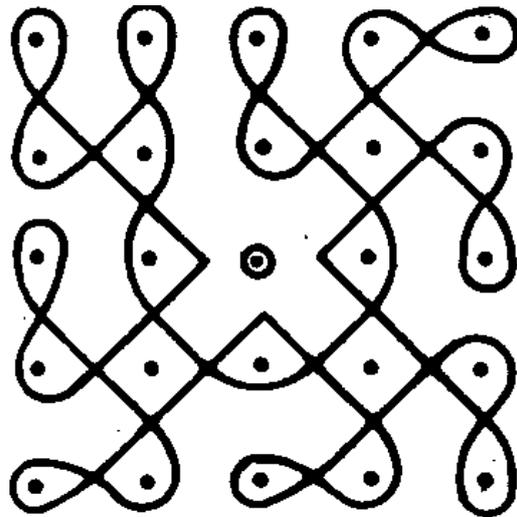
?

C

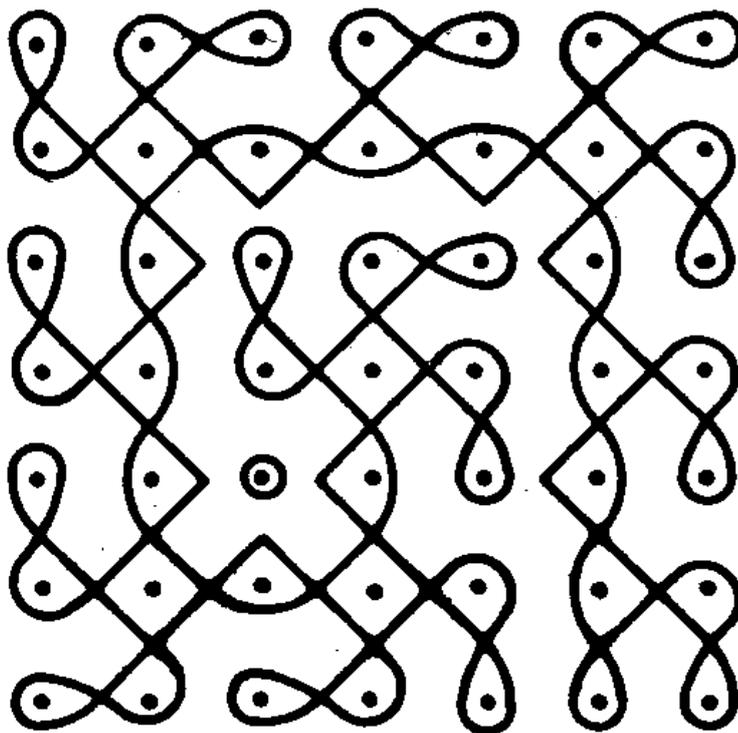
D



03.



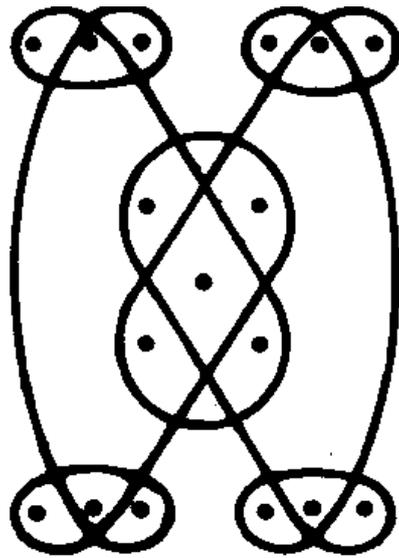
A



? ?  
C D

B

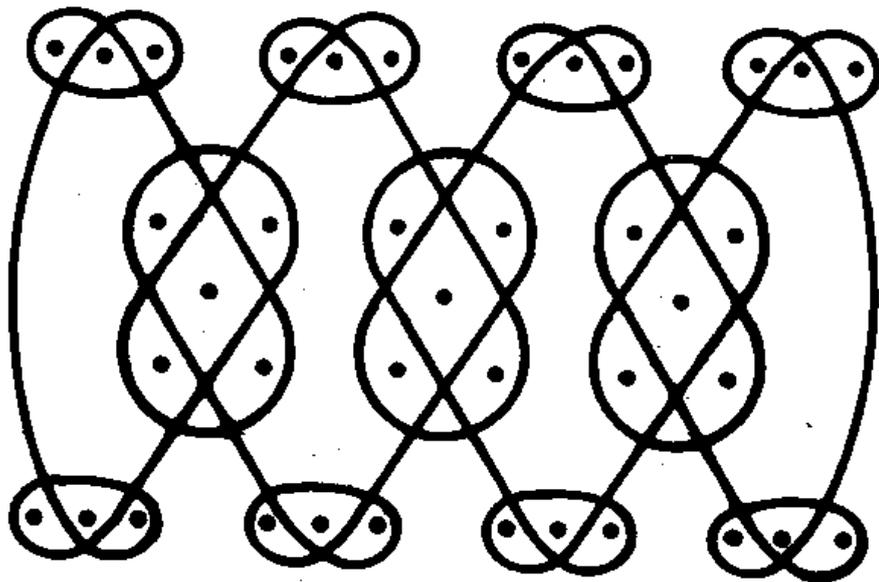
04.



A

?

B

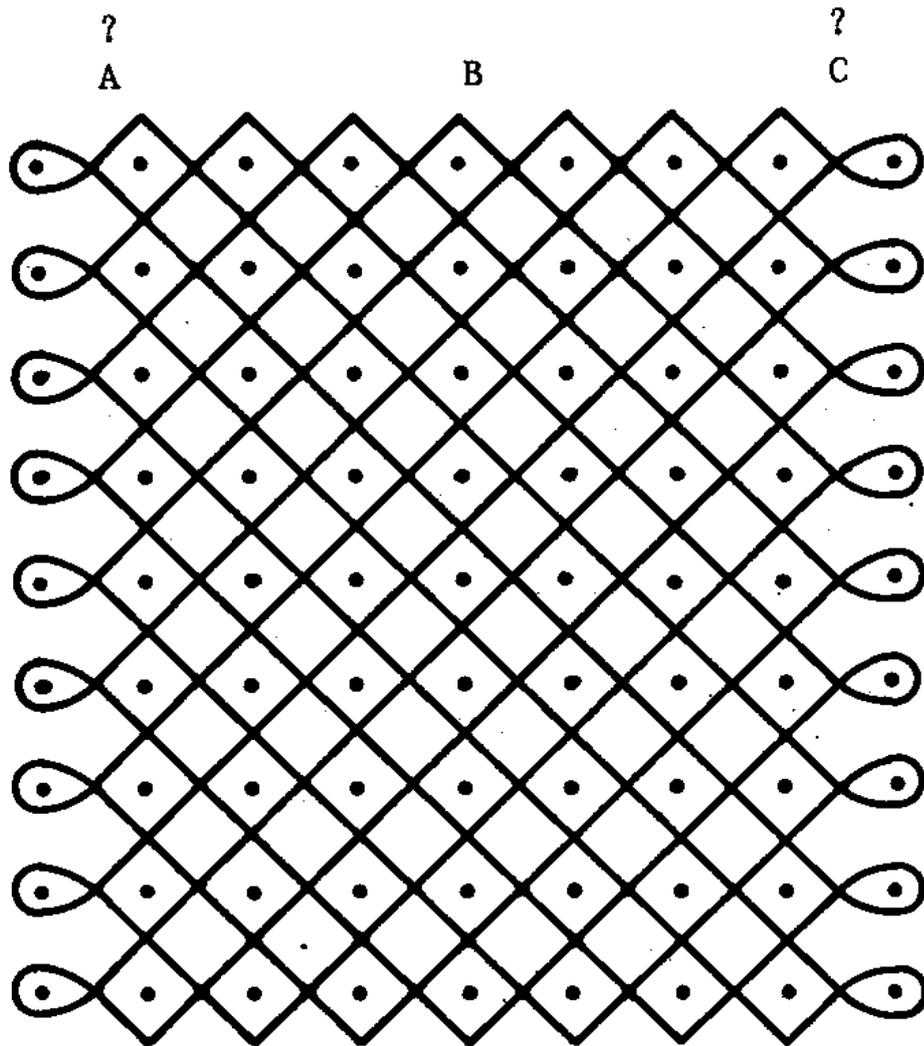
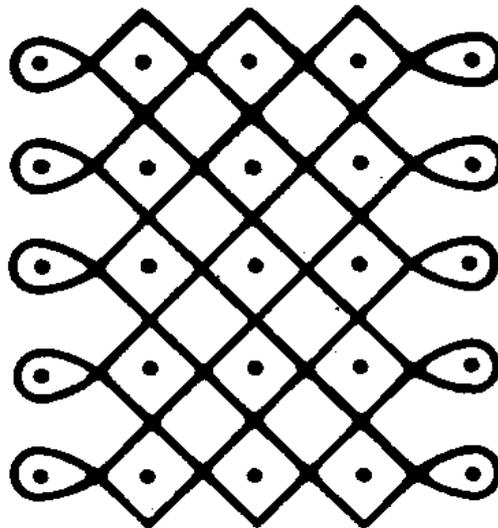


C

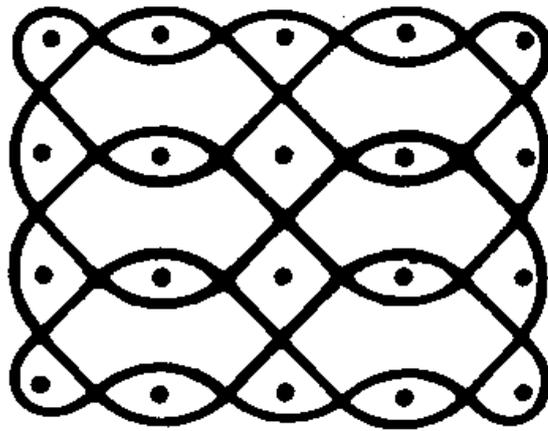
?

D

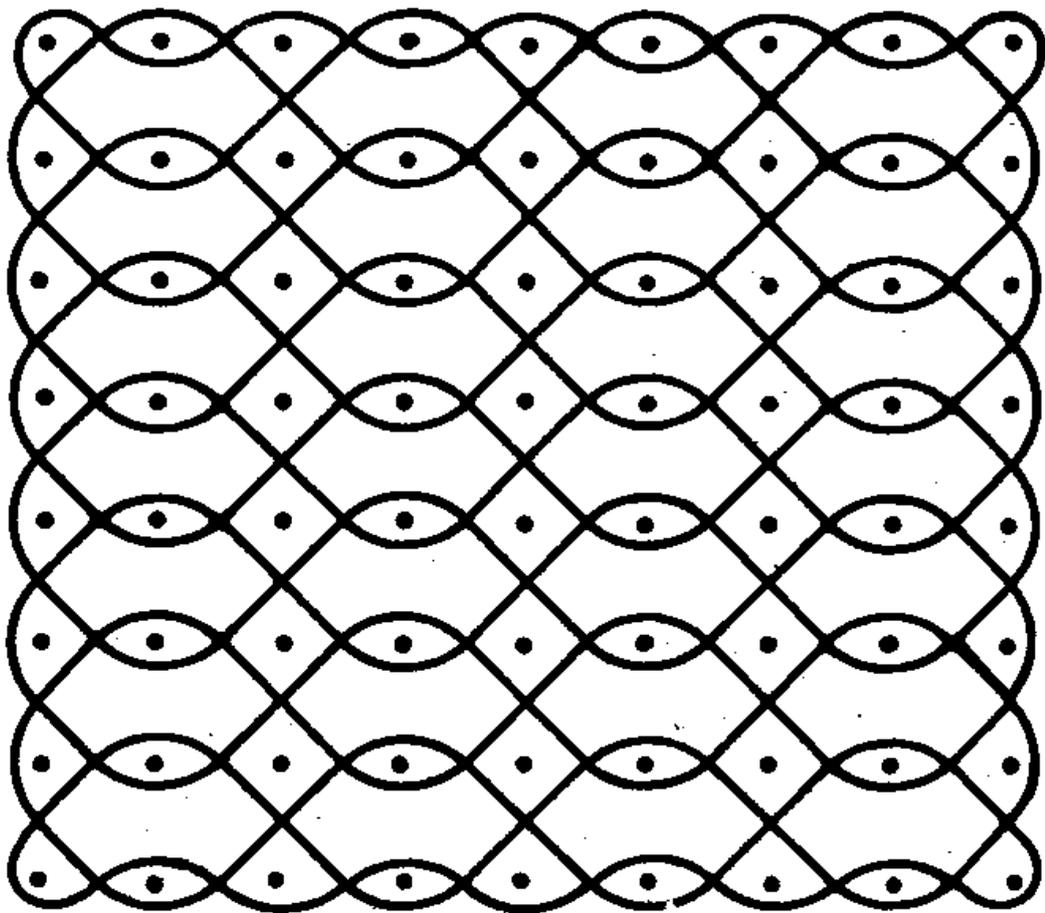
05.



06.



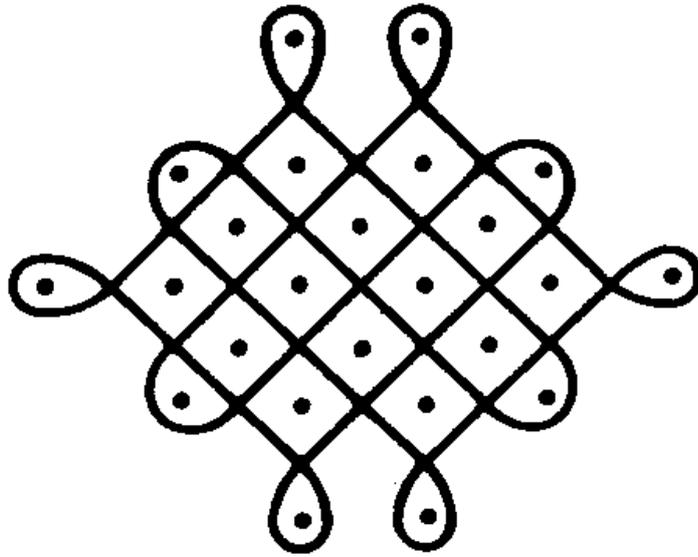
A



B

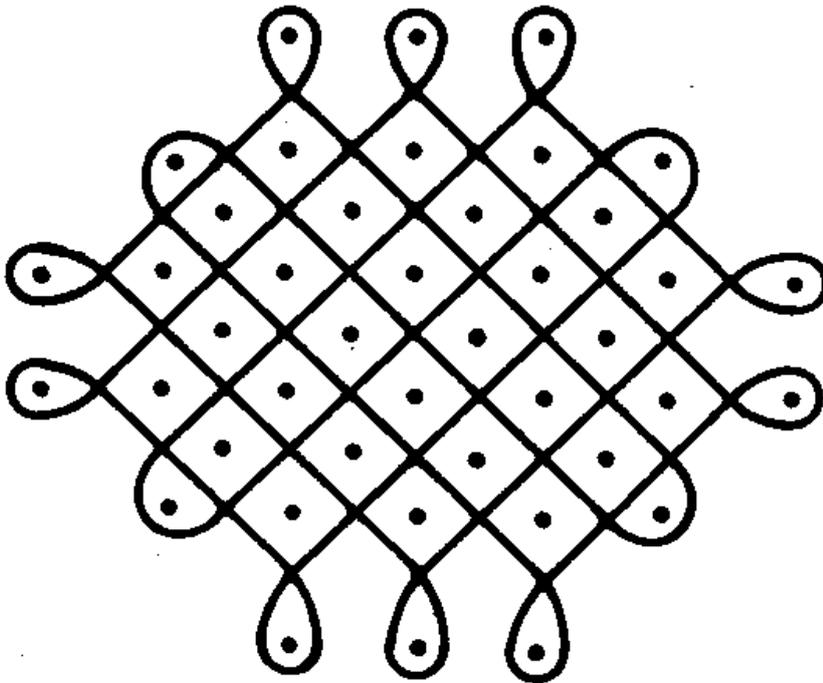
?  
C

07.



?  
A

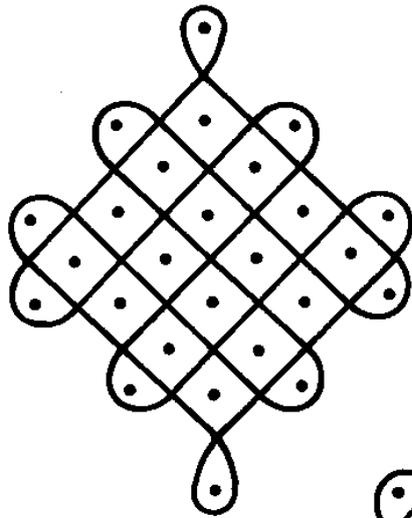
B



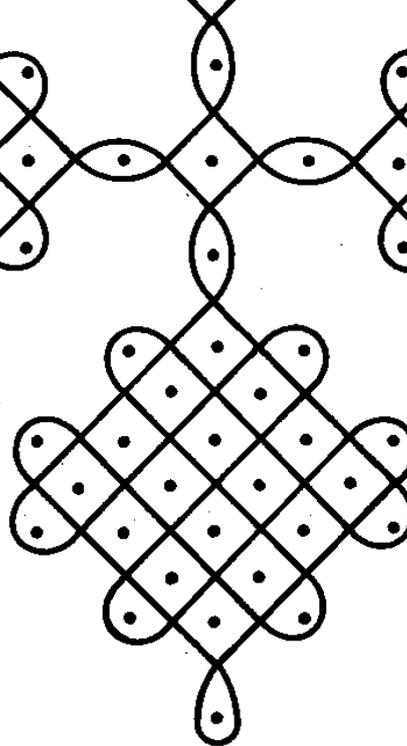
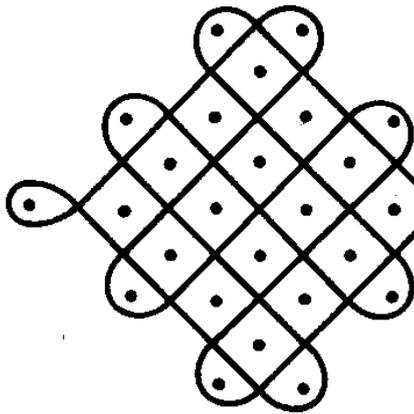
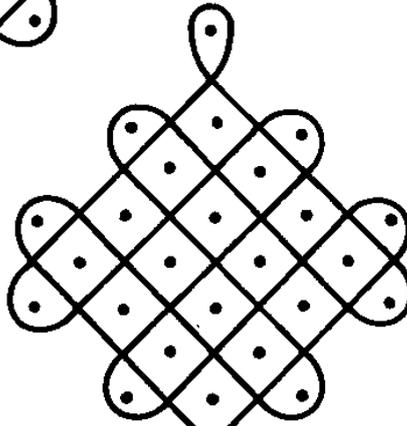
C

? ?  
D E

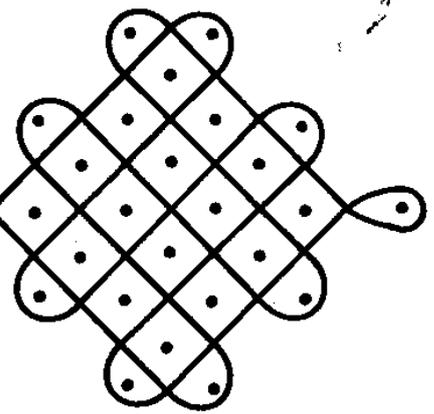
08.



A



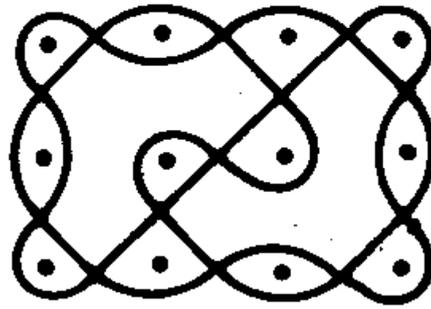
B



?

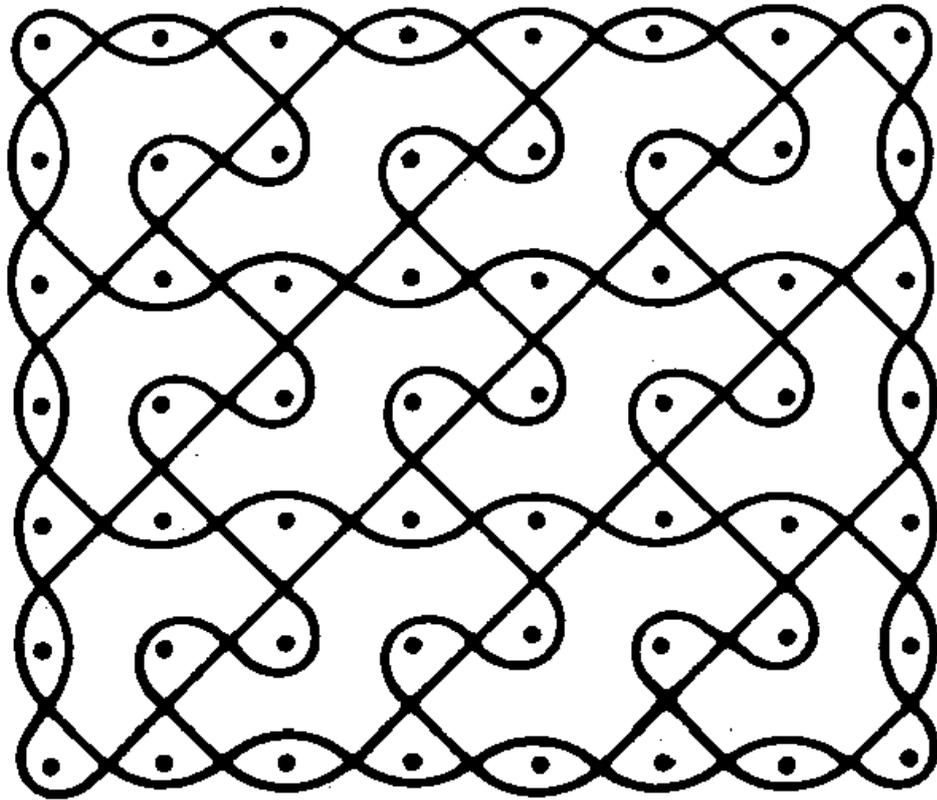
C

09.



A

?  
B

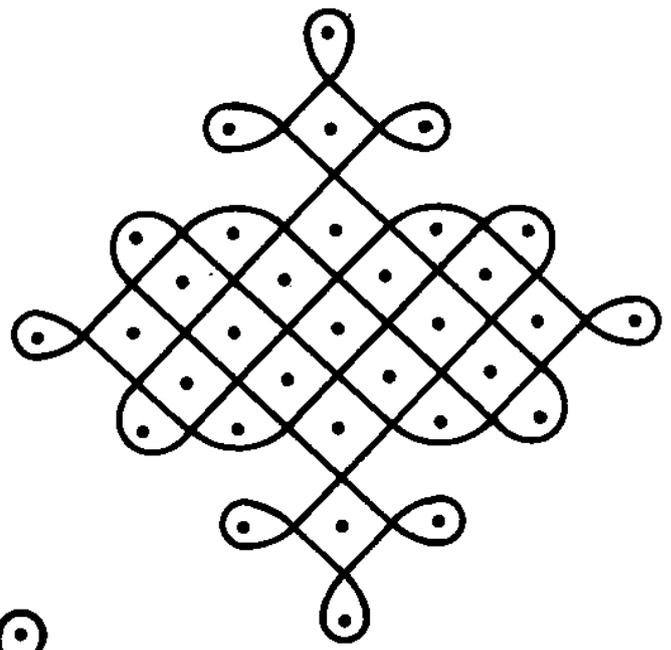


C

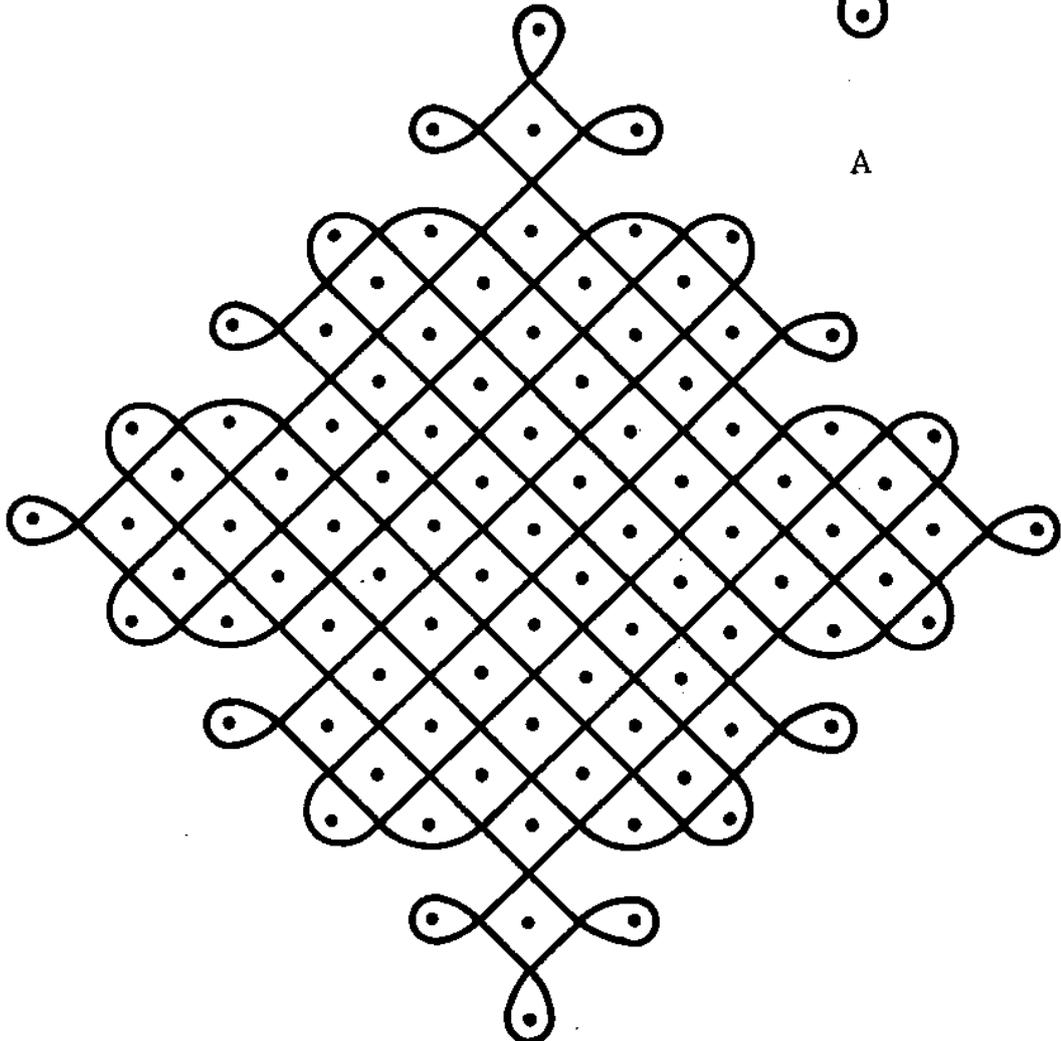
?  
D

?  
E

10.



A

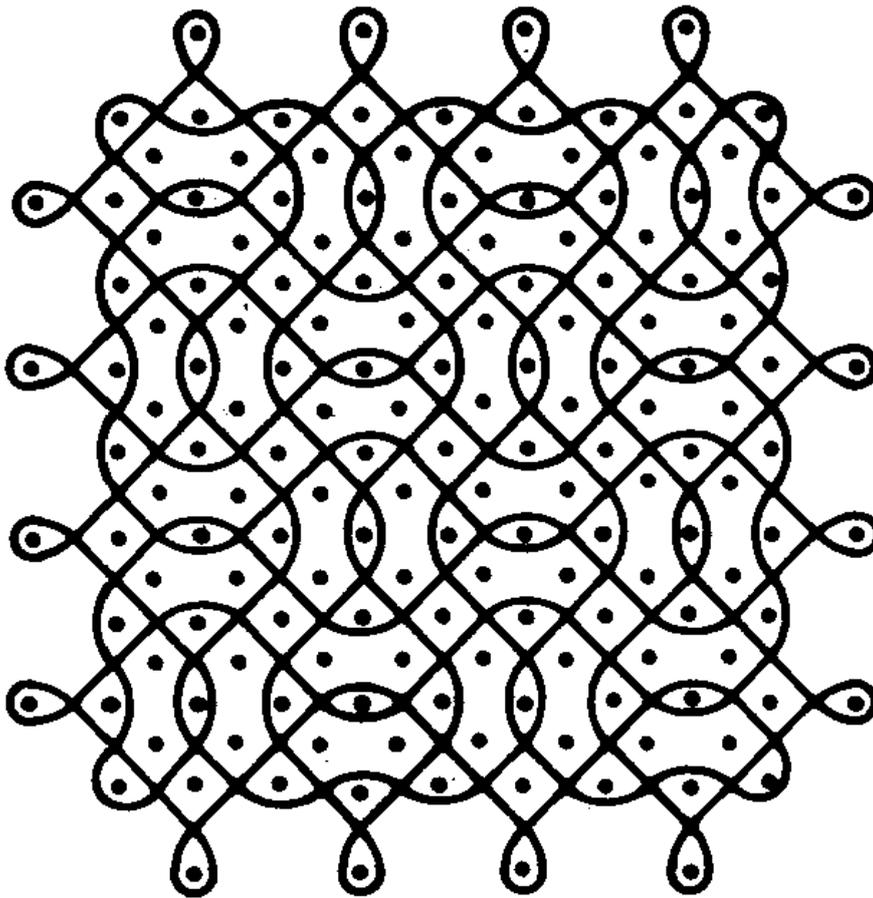
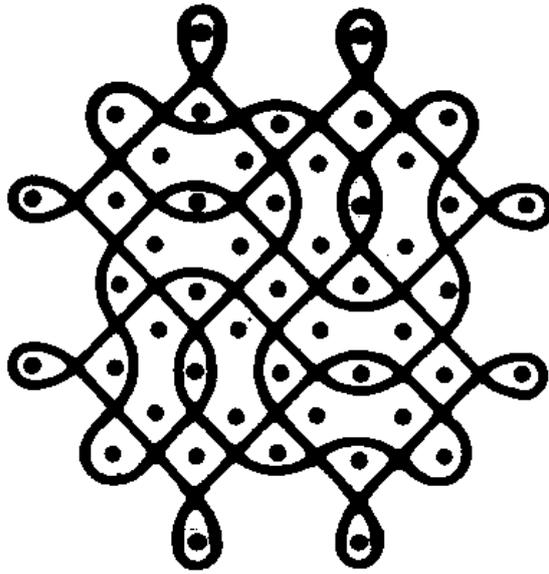


B

? ?  
C D

11.

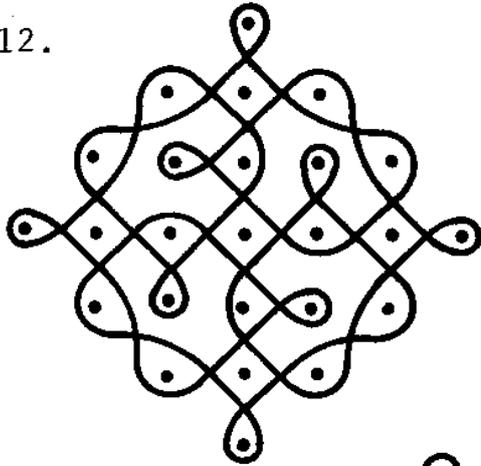
A



B

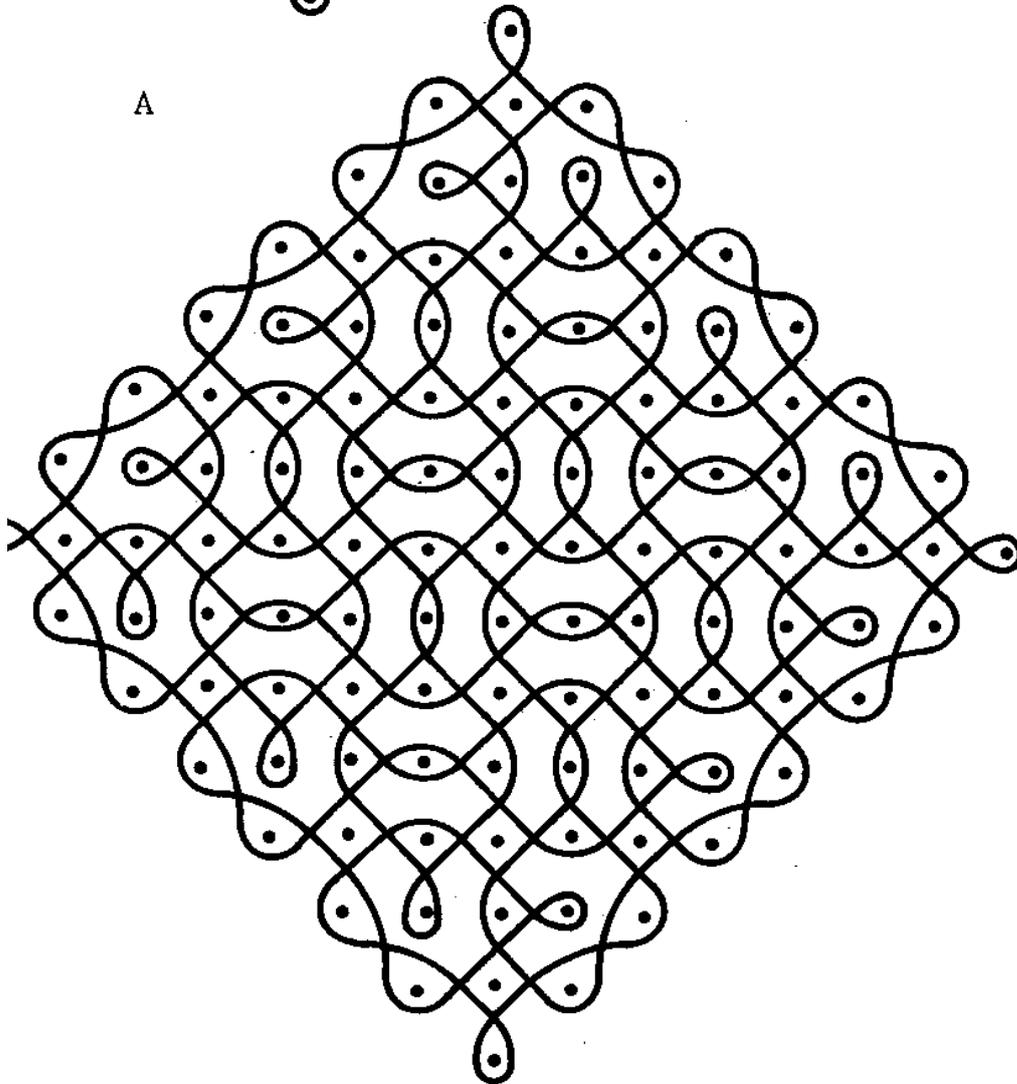
? ? ?  
C D E

12.



?  
B

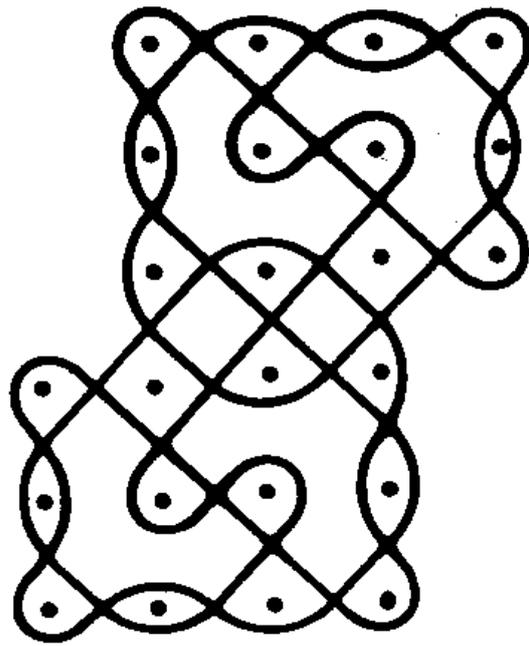
A



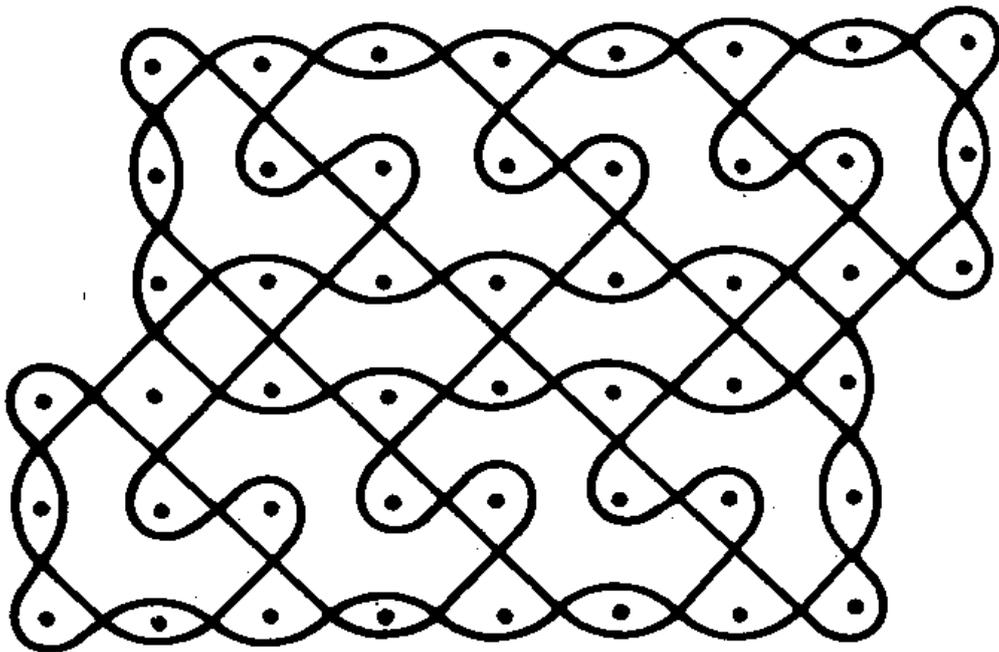
C

?  
D

13.



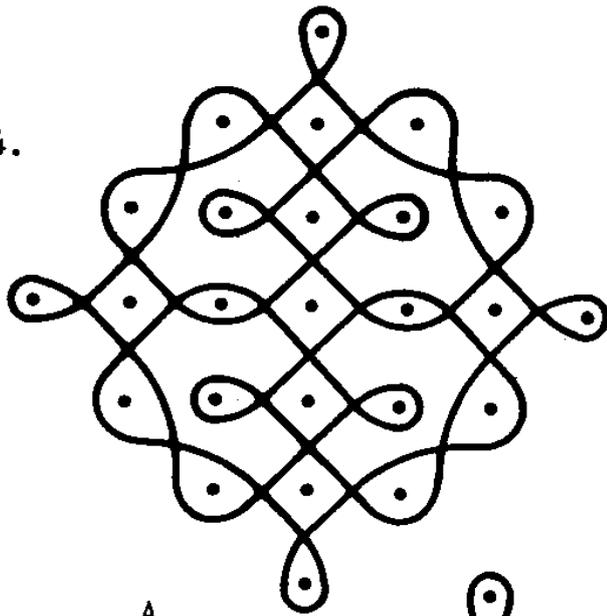
A



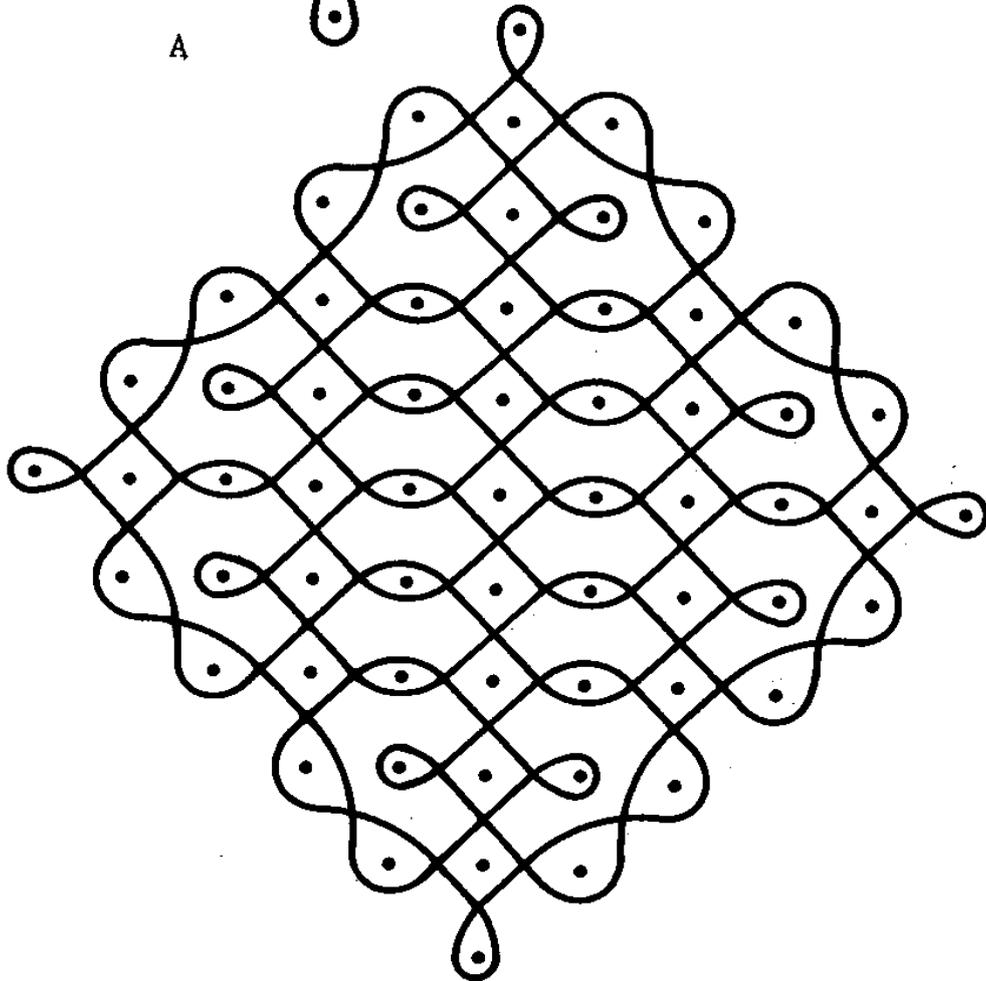
B

? ?  
C D

14.



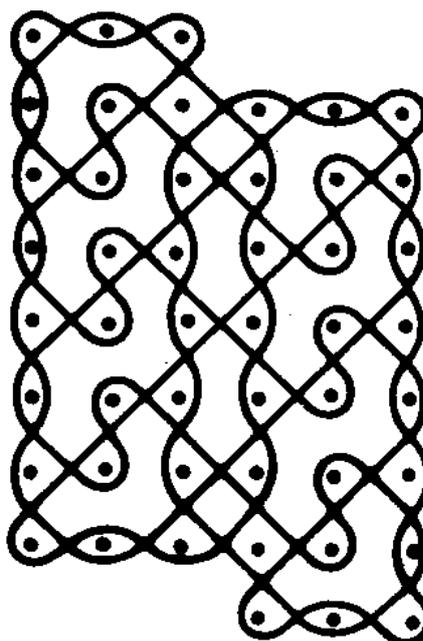
A



B

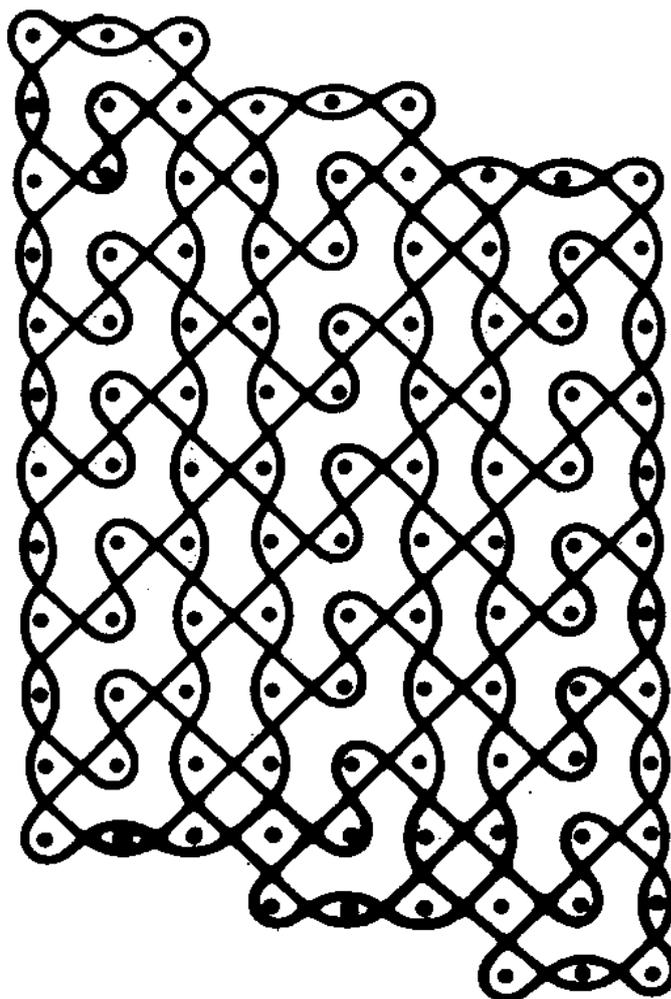
? ? ?  
C D E

15.



?  
A

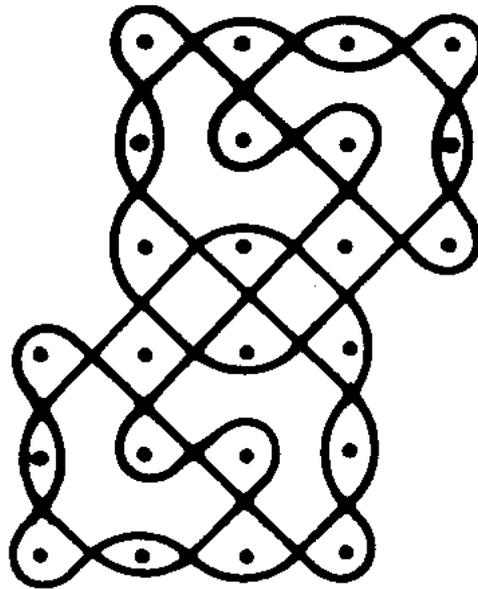
B



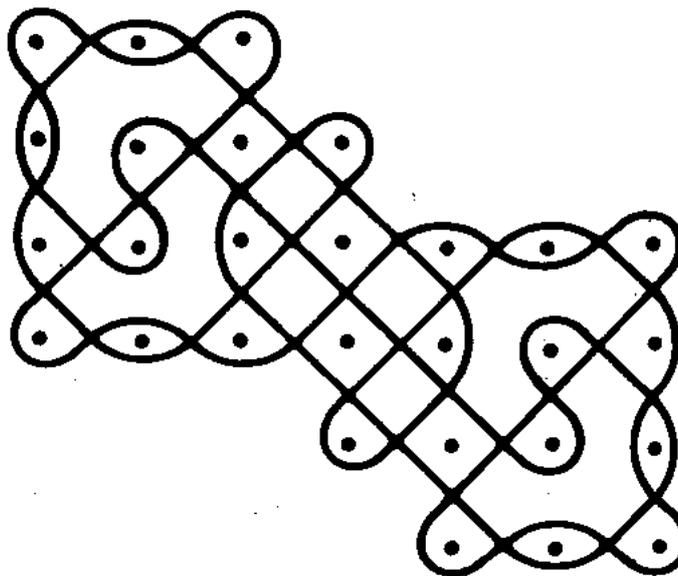
C

?  
D

16.



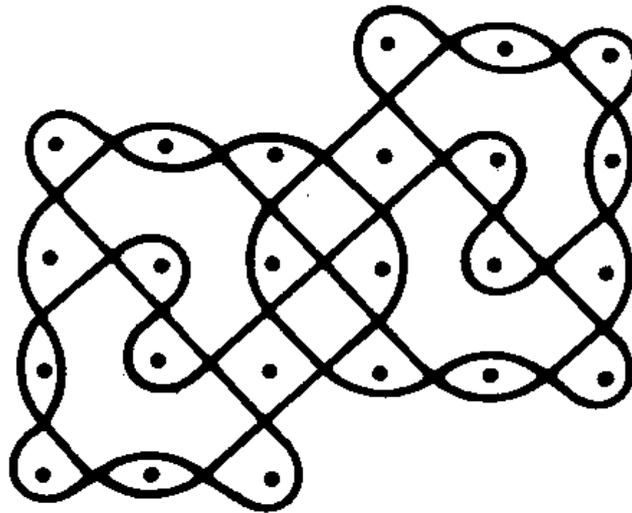
A



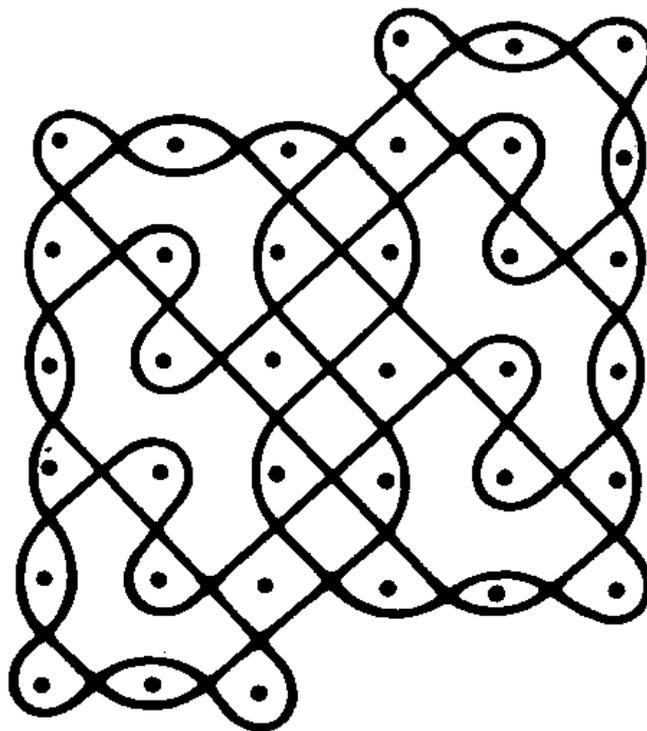
B

?  
C

17.



A



B

? ?  
C D

### Fontes dos Desenhos

- 1C Desenho ideográfico dos Quiocos, representando uma ponte suspensa, feita com varas e lianas (F, p.259, 260);
- 2A, B Elementos ideográficos freqüentemente utilizados pelos Quiocos e Tamil (G 1 e 2);
- 3B Desenho ideográfico dos Quiocos, alusivo a um ninho de galinha escondido no colmo (F, p.273, 274);
- 4C Desenho ideográfico dos Quiocos, representando um saco típico usado no transporte de cargas (F, p.275, 276);
- 5D Ideograma Quioco representando um cemitério (reconstruído em G1);
- 6A Ideograma Quioco representando o estômago de um leão (F, p.279, 280);
- 7A, B, 8A Pietogramas tradicionais dos Tamil (G2);
- 9B, C Pietogramas Quiocos reconstruídos (G1);
- 10B Ideograma Tamil, representando um “Nó de Brahma” (símbolo de proteção), reconstruído em G2;
- 11A Pietograma tradicional Tamil (reconstruído em G2);
- 14C “Nó de Brahma” (reconstruído em G2).

### Referências

- F Fontinha, M:Desenhos na Areia dos Quiocos do Nordeste de Angola, IICT, Lisboa, 1983.
- G1 Gerdes, P.:Reconstruction and extension of lost symetries: examples from the Tchokwe of North-Est Angola, publicação UEM, Maputo, 1988.
- G2 Gerdes, P.:Reconstruction and extension of lost symmetries: examples from the Tamil of South India. (a ser publicado em: I. Pargittai, ed.: Symmetry 2, Pergamon Press, New York, 1989.)