A × B:

A × B = all ordered pairs (x, y) where $x \in A$ and $y \in B$

Elements in A: g, y

Elements in B: 3, 4, 5

Pair each element of A with each element of B

- Take g (from A) with each element of B:
  (g, 3), (g, 4), (g, 5)
- Take y (from A) with each element of B:
  (y, 3), (y, 4), (y, 5)

Hence,

$$A \times B = \{(g,3), (g,4), (g,5), (y,3), (y,4), (y,5)\}$$

B × A:

A: g, y (x, y) $x \in B$ and $y \in A$

B: 3, 4, 5

B - 3: (3, g), (3, y)

B - 4: (4, g), (4, y)

B - 5: (5, g), (5, y)

$$B \times A = \{(3,g), (3,y), (4,g), (4,y), (5,g), (5,y)\}$$

A × A:

A: g, y (x, y) $x \in A$ and $y \in A$

A - g: (g, g), (g, y)

A - y: (y, g), (y, y)

$$A \times A = \{(g,g), (g,y), (y,g), (y,y)\}$$

B × B:

B: 3, 4, 5 (x, y) $x \in B$ and $y \in B$

B - 3: (3, 3), (3, 4), (3, 5)

B - 4: (4, 3), (4, 4), (4, 5)

B - 5: (5, 3), (5, 4), (5, 5)

$$B \times B = \{(3,3), (3,4), (3,5), (4,3), (4,4), (4,5), (5,3), (5,4), (5,5)\}$$