Written 1

Exercise 1:

a.

$$\{1,3,5,7,...\} = \{2(1)-1, 2(2)-1, 2(3)-1, 2(4)-1,..., 2n-1\}$$
$$= \boxed{\{2n-1 \mid n \in \mathbb{N}\}}$$

b.

$$\{1,4,9,16,25,...\} = \{1^2, 2^2, 3^2,..., n^2\}$$
$$= \boxed{\{n^2 \mid n \in \mathbb{N}\}}$$

Exercise 2:

$\{(1,2),(2,3),(3,4),(4,5)\}$
$\{(1,2),(2,3),(3,4),(5,6)\}$
$\{(1,2),(2,3),(5,6),(4,5)\}$
$\{(1,2),(5,6),(3,4),(4,5)\}$
$\{(5,6),(2,3),(3,4),(4,5)\}$

Exercise 3:

Since A is a subset of B, then all elements of A is in the set of B, therefore, the intersection of A and B is the set A itself.

Exercise 4:

$\varnothing \neq \{\varnothing\}$. This is because the left side is a set with no elements, while the right side is a set with an element, which is a null set.

Exercise 5:

$A := \{a,b,c\}$
$B := \{1,0\}$
$A \times B = \{(a,1),(a,0),(b,1),(b,0),(c,1),(c,0)\}$
$B \times A = \{(1,a),(0,a),(1,b),(0,b),(1,c),(0,c)\}$

Since the ordered pairs are reversed, then A x B is not equal to B x A.