

# IGCSE-1 Math worksheet: set 1

Name: \_\_\_\_\_ Score: \_\_\_\_\_ (Due: 2 Sep.)

1. Describe the sets in words and write down another two elements for each

- (1)  $\{Beijing, Nanjing, Tianjing, \dots\}$
- (2)  $\{Euler, Newton, Gauss, \dots\}$
- (3)  $\{2, 3, 5, 7, \dots\}$
- (4)  $\{a, e, i, \dots\}$
- (5)  $\{Jan., Feb., Mar., \dots\}$
- (6) give one set by yourself and describe it

2. State whether each of the following statements is true or false. If it is false, correct it.

- (1)  $\{1, 2, 3, 4\} \not\subset \{1, 2, 3, 4\}$
- (2)  $\{1, 2, 3\} \subset \{1, 2, 3\}$
- (3)  $\{1\} \in \{1, 2, 3\}$
- (4)  $\emptyset \in \{1, 2, 3\}$
- (5)  $\{1, 2, 3\} \not\subseteq \{1, 3, 4\}$
- (6)  $2 \subset \{2, 3, 5\}$

3. Given a set  $A = \{1, 2, 3, 4, 5, 7, 8, 9\}$

- (1) list subset  $B_1$  {even number}

- (2) list subset  $B_2$  {odd number}
- (3) list subset  $B_3$  {prime number}
- (4) list subset  $C_1$  {3 elements} of  $B_3$

4. For the sets  $A=\{1,5,7,9\}$  and  $B=\{2,5,9,10\}$

- (1) list all the subsets of A and of B
- (2) find the intersection and union of A and B
- (3) check the identity  $n(A \cup B) = n(A) + n(B) - n(A \cap B)$  where  $n(A)$  denote the numbers of elements in set A

5.

- (1) for set  $\emptyset$ , we have \_\_\_ subsets and \_\_\_ proper subsets.
- (2) for set  $\{1\}$ , we have \_\_\_ subsets and \_\_\_ proper subsets.
- (3) for set  $\{1, 2\}$ , we have \_\_\_ subsets and \_\_\_ proper subsets.
- (4) for set  $\{1, 2, 3\}$ , we have \_\_\_ subsets and \_\_\_ proper subsets.
- (5) ...
- (6) for set  $\{1, 2, 3, \dots, n\}$ , we have \_\_\_ subsets and \_\_\_ proper subsets.
- (7) for a set has  $n$  elements, we have \_\_\_ subsets and \_\_\_ proper subsets.