IGCSE-1 Math worksheet: set 2

Name:_____ Class:_____ Score:_____(**Due:2 Sep.**)

1. Set $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ is the universal set

(1) list subset B {all the even numbers}

(2) list subset C {prime numbers}

(3) what is the set B', C', $B' \cap C$, $B \cup C$

(4) how many proper subsets do A has?

2. If $A = \{2, 4, 6, 8\}$ write all the proper subsets of A with two or more elements.

3. Please list all the subsets of {Winnie, Natalie, Emma} and which ones are proper subsets?

4. If the universal set is defined by $U = \{x \in Z, 1 < x < 20\}$, set $P = \{2, 3, 5, 7, 11, 13, 17\}$ and $Q = \{11, 13, 15, 17, 19\}$

(1) draw a Venn diagram to illustrate the above information

(2) get $P \cap Q$ and $P \cup Q$

(3) get $P' \cup Q$

5. If $A = \{x \in \mathcal{R} : -2 \leq 4 - x < 3\}$ and $B = \{x \in \mathcal{R} : -2 \leq x < 5\}$, express each of the following sets in a similar form.

(1) $A \cap B$

(2) $A' \cap B$

(3) $A \cup B'$

6. Given that U={triangles}, A={isosceles triangles}, B={equilateral triangles}, C={right angled triangles}, draw a single, clearly-labeled Venn diagram to illustrate these sets.

7. In a school hostel, all the 70 students take lunch or dinner or both meals at the hostel. 30 take lunch and 50 take dinner. Draw a Venn Diagram to illustrate the information. Find the number of students who take only lunch or dinner but not both.

8. A group of 55 students were asked modulus they liked among math, physics and science. 24 of them liked math,23 of them liked physics and 19 of them liked science. 4 of them liked both math and physics, 6 of them liked both math and science, 6 of them liked physics and science. 5 of them does not like any of these modulus.

(1) Draw a Veen diagram to represent the information

(2) The number of students who only liked math(physics or science)

(3) The number of students who only liked math and physics

(4) The number of students who liked all the three modulus

9. Let U be an universal set and let A and B be two subsets of U. With the aid of a Venn diagram, find in each case the greatest and least possible values of $n(A \cap B)$ where $n(A)$ denote the number of elements of set A.

(1) $n(A) = 52, n(B) = 37$ and $n(U) = 100$

(2) $n(A) = 40, n(B) = 45$ and $n(U) = 70$.