SET THEORY- UNIT TEST

Name: ______________________________ Date: ________________________

INSTRUCTIONS: Answer ALL questions in the spaces provided.

1. Write in words.

(a) $A \subset B$ ____

(b) $2 \in G$ ____

(c) $D = \varnothing$ ____

(d) $n(E) = 10$ ____

2. List the members of the following sets.

(a) A= {prime numbers less than 20}____

(b) B={integers greater than -3 but less than 2}________________________________

(c) C= {days of the week beginning with T} __________________________________

(d) D= {Factors of 18} ____

3. Describe fully each of the sets given below.

(a) M={January, February, March, April} ______________________________________

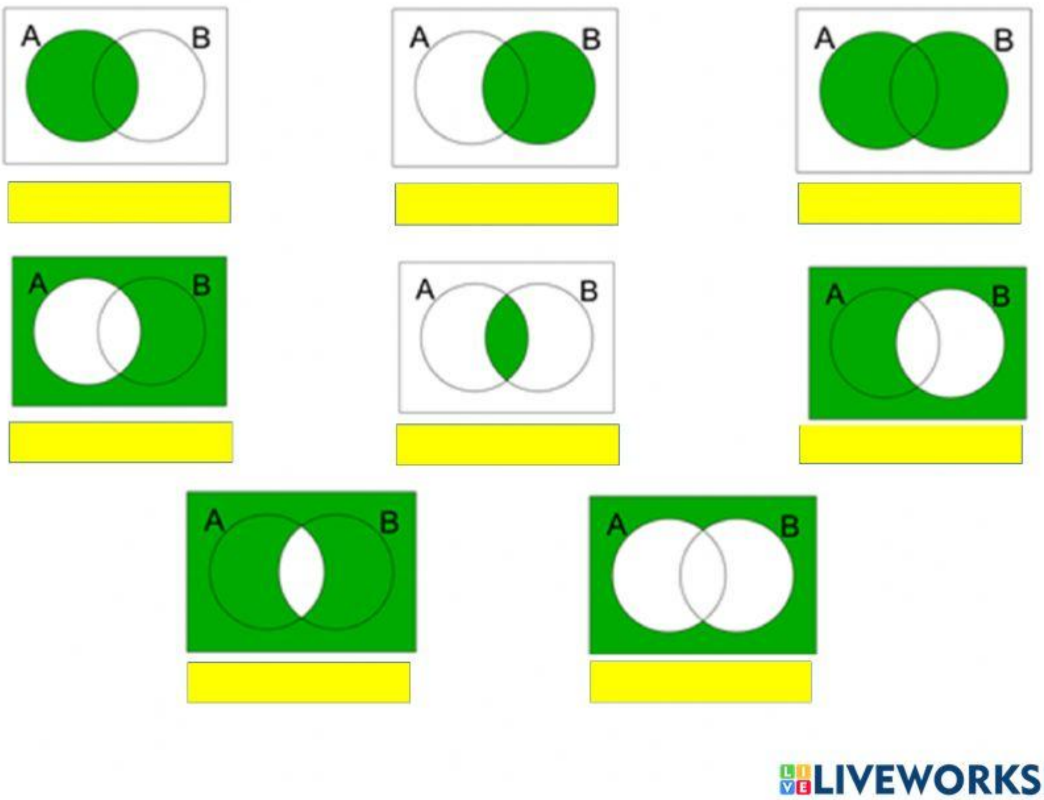
(b) P= {3, 6, 9, 12, 15} ____

(c) R= {1, 3, 5, 7, 9,...} ____

(d) S= {1, 2, 3, 4, 6, 12} ____

4. Identify the shaded region in each diagram below.

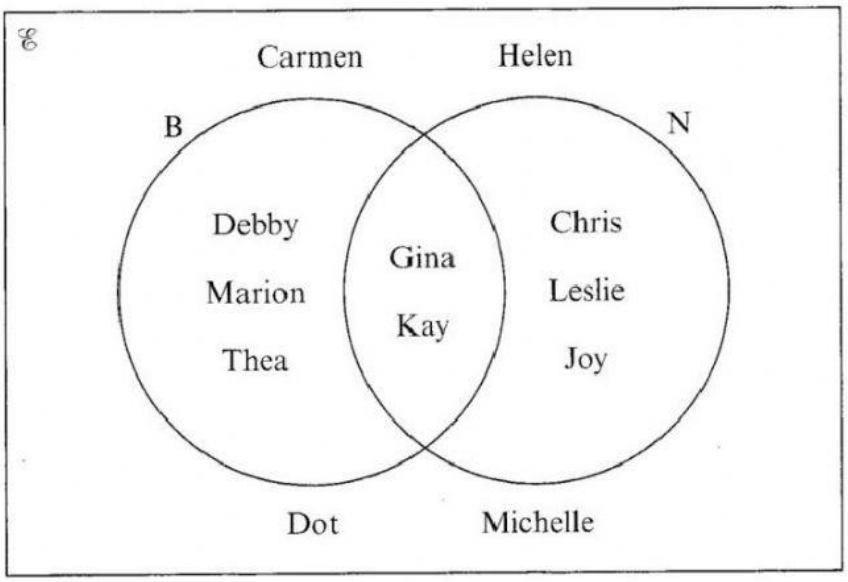
$A \cup B$ $A \cap B$ B' A' A B $(A \cup B)'$ $(A \cap B)'$



5. The Venn diagram below shows the results of a class survey.

B = { students who play basketball }

N = { students who wear New shoes }



(a) How many students play basketball?

Answer: _____ [1]

(b) Which students play basketball and wear new shoes?

Answer: _____ [1]

(c) Write down **n** (BUN).

Answer: _____ [2]

(d) To which group does Michelle belong?

Answer: _____ [2]

(e) How many students are in the class?

Answer: _____ [1]

6. Write true or false for each of the following statements. [7]

(a) If A = {prime numbers less than 12}, then n(A) = 5 _____

(b) An infinite set is a set where all members can be listed. _____

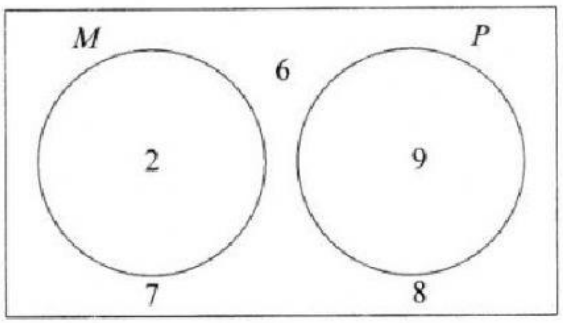
(c) Disjoint sets are sets whose intersection is the null set. _____

(d) {2, 3, 5, 7} and {prime numbers less than 10} are equal sets. _____

(e) Equivalent sets have the same elements. _____

(f) The union of two sets contains all common elements. _____

7. Use the Venn diagram below to answer the questions which follow.



List the member(s) of

(i) M,

Answer: {_____} [1]

(ii) P,

Answer: {_____} [1]

(iii) $M \cup P$,

Answer: {_____} [1]

(iv) $M \cap P$,

Answer: {_____} [1]

(v) M',

Answer: {_____} [2]

(vi) ε.

Answer: {_____} [2]

8. Given ε= {-3, -2, -1, 0, 1, 2, 3}, set C = {-2, 0, 2}, and set D = {0, 1, 2, 3} find :

a) $C \cup D$ _____

b) $C \cap D$ _____

c) C' _____

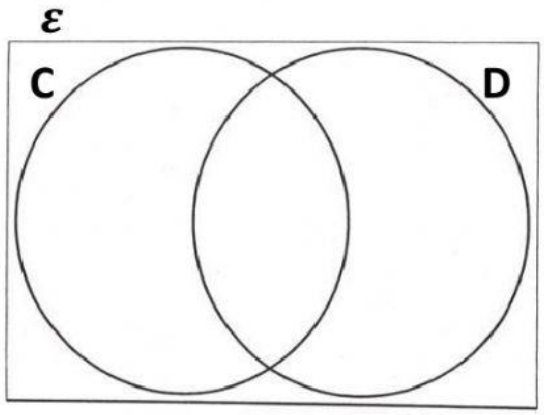
d) $n(D)$_____

e) $n(C \cap D)$ _____

f) $(C \cup D)'$ _____

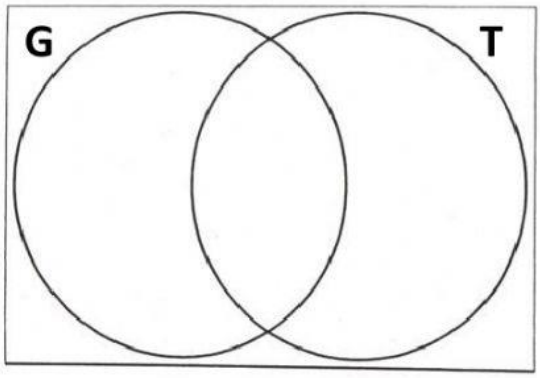
g) Describe set D fully _____

h) Place the information above in the venn diagram below.



9. For his class project, Donald did a survey on the newspapers, Guardian (G) and Tribune (T), read by his class. There were 32 students in the class. 11 students read both papers. 16 read the Guardian. 7 read the Tribune only.

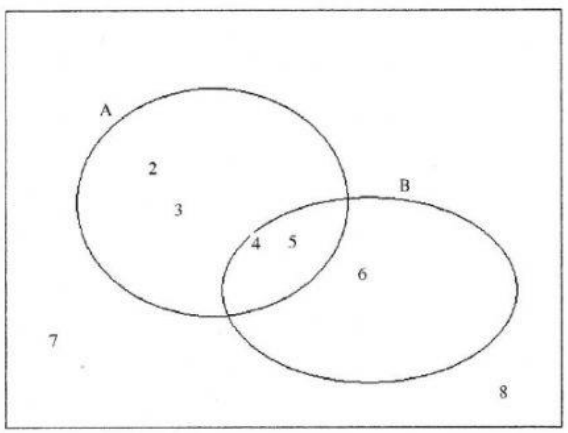
(a) Represent the information above on a Venn diagram. [4]



(b) Using the information in your Venn diagram, write the number of students who read:

(i) only the Guardian _____ (ii) neither the Guardian nor the Tribune_____

10. Study the Venn diagram below.



Using each symbol only once, fill in the blanks to make a true statement.

∪	∩	⊂	∈

a) (i) A _____ B = {4,5} [1]

(ii) {2,3} _____ A [1]

(iii) A _____ B {2,3,4,5,6} [1]

(iv) 4 _____ B [1]