

LEMOYNE-OWEN COLLEGE  
DIVISION OF NATURAL SCIENCES, MATHEMATICS AND COMPUTER SCIENCE

MATH 120  
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Quiz 2

*Show your work*

*Name:* \_\_\_\_\_

Problems 1 to 8 refer to the following sets.

Let  $U = \{ 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 \}$

$$A = \{ 4, 8 \}$$

$$B = \{ 1, 3, 5, 7, 9 \}$$

$$C = \{ 2, 4, 6, 8 \}$$

$$D = \{ 3, 6, 9 \}.$$

1. Fill each blank with either  $\in$  or  $\notin$  to make the following statements true.

(a)  $0$  \_\_\_\_\_  $D$

(b)  $6$  \_\_\_\_\_  $C$

2. (a) Is the statement  $A \subseteq U$  true? Why?

(b) Is the statement  $D \subset B$  true? Why?

(c) List all subsets of  $A$ .

(d) Find the number of subsets of  $C$ .

3. Find  $B \cup D$ .

4. Find  $A \cap B$ .

5. Find  $C'$ .

6. Find  $C - D$ .

7. Find  $A \cap \phi$ .

8. Find  $(A \cup C)'$ .

9. Whether  $\{ 1, 2 \} = \{ 2, 1 \}$ ? Why?

10. Find  $n(E \cup F)$ , the number of elements in  $E \cup F$ , if  $n(E) = 13$ ,  $n(F) = 6$  and  $n(E \cap F) = 3$ .