**Chapter 3 Practice Problems**

1. Match each of the pairs of sets with the Venn diagrams provided

  

1. A = {even numbers} , B = {odd numbers}
2. A = {prime numbers} , B = {odd numbers}
3. A = {numbers divisible by 4}, B = {even numbers}
4. A = {students in this discrete class} , B = {students in data structures}
5. A = { students in this discrete class }, B = {students in Networking}
6. A = { students in this discrete class }, B = {students at UNI}
7. Consider

T = {2,3,8,10}

What is the value of P(T)?

1. Assume
* A = { letters in the word ELEPHANT }
* B = { letters in the word SYNCHOPHANT }
* C = {letters in the word FANTASTIC}
* D = {letters in the word STUDENT}

If the universe U is the set of 26 capital letters find:

1. A ∪ B
2. A ∩ B
3. A ∩ C
4. D ∪ A
5. (A ∩ C ) ∪ (B ∩ D)
6. A ∩ (C ∩ D)
7. Write in words how to read each of the following out loud. Then write the shorthand notation for each set.
	1. {x ∈ U | x ∈ A and x ∈ B }
	2. {x ∈ U | x ∈ A or x ∈ B }
	3. {x ∈ U | x ∈ A and x ∉ B }
	4. {x ∈ U | x ∉ A}
8. Let :

A = { 1,3,5,7,9}

B = { 3,6,9 }

U = {x ∈ Z | 0<x<10 }

Find the following

* 1. A ∪ B
	2. A ∩ B
	3. A ∪ U
	4. A ∩ U
	5. A – B
	6. Ac
	7. Bc
1. Complete the following sentences without using the symbols ∩, ∪, and -.
	1. x ∉ (A ∩ B) if, and only if, …
	2. x ∉ (A ∪ B) if, and only if, …
	3. x ∉ (A – B ) if, and only if, …
2. Consider the following sets:
	* U = set of all students at UNI
	* S = set of all students with majors in CHAS
	* C = set of all computer science majors
	* P = set of all physics majors
	* F = set of all women students at UNI

What would the Venn diagram for these sets look like?

1. Write an expression using the sets from activity #5 and the set operations to express the following:
	1. The set of people majoring in either computer science or physics.
	2. The set of people majoring in both computer science and physics.
	3. The set of computer science majors who are women.
	4. The set of people who do not have a major in CHAS.
	5. The set of male students who are majoring in both computer science and physics.
	6. The set of female physics students and male computer science students.