

Worksheet 1.1

1. Write the following in the set-tabular form

1) A set of countries in Asean

{Brunei , Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Vietnam, Thailand}

2) set of a Natural numbers multiple of 4

{4,8,12,16,...}

3) Provinces set of names that begin with the letter " ก "

{ กรุงเทพมหานคร , กระบี่ , กาญจนบุรี , กาฬสินธุ์ , กำแพงเพชร }

4) The set of positive even number less than 10

{2,4,6,8}

5) The set of integer number greater than 100

{101,102,103,...}

6) The set of negative integer greater than -100

{-99,-98,-97,...,-1}

7) { x/x is a integer greater than 3 and less than 10 }

{4,5,6,7,8,9}

8) $\{x/x \text{ is a integer between } 0 \text{ and } 1\}$

$\{ \}$ or ϕ

9) The set of positive integers with double digits.

$\{10,11,12,\dots,99\}$

10) The set of negative integer greater than 5

$\{ \}$ or ϕ

11) $\{x/x = n^2, n \text{ is a integer numbers between } -4 \text{ and } 4\}$

$\{0,1,4,9\}$

12) $\{x/x \text{ is a prime number and even number}\}$

$\{2\}$

13) $\{x/x \in N, \text{ and } x^2 - 2x - 8 = 0\}$

$\{4\}$

14) $\{x/x, n \text{ is a integer numbers and } 2 \leq x \leq 11\}$

$\{2,3,4,\dots,11\}$

15) $\{x/x, n \text{ is a integer numbers bigin } 3 \text{ to } 11\}$

$\{3,4,5,\dots,11\}$

Worksheet 1.2

1. Write the following in the set-builder form

1) $N = \{2, 4, 6, \dots\}$

$N = \{x/x \text{ is a positive even number}\}$

2) $P = \{\dots, -2, -1, 0, 1, 2, \dots\}$

$P = \{x/x \text{ is a integer number}\}$

3) $R = \{2, 3, 5, 7, 11, \dots\}$

$R = \{x/x \text{ is a prime number } \}$

4) $T = \{1, 3, 5, 7, \dots, 15\}$

$T = \{x/x \text{ is a positive odd number beginning 1 to 15}\}$

5) $T = \{\text{Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday}\}$

$T = \{x/x \text{ is the day in a week}\}$

6) $X = \{1, 2, 3, \dots\}$

$\{x/x \text{ is a positive number } \}$

7) $M = \{-10, -9, -8, \dots, -1\}$

$\{x/x \text{ is a negative integer greater than } -11\}$

Worksheet 1.3

1. What is the number of element in the following set

1) $B = \{1234\}$ 1.....

2) $C = \{a,b,c,de,f,gh,ijk\}$ 7.....

3) $D = \{x/x \text{ is a positive number between } 10 \text{ and } 20\}$ 9.....

4) $G = \{x/x \text{ is a positive number less than } 0\}$ 0.....

5) $R = \{-6,-3,0,3,6\}$ 5.....

6) $R = \{\{\{0\}\},\{1\}\}$ 2.....

7) $U = \{x/x, n \text{ is a integer numbers and } 5 \leq x \leq 10\}$ 6.....

8) $I = \{x/x \text{ is the positive even number less than } 12\}$ 5.....

9) $F = \{-1,-2,-3,\dots,-99\}$ 99.....

10) $H = \{0,3,6\}$ 3.....

11) $R = \{\{\{v\}\}\}$ 1.....

12) $G = \emptyset$ 0.....

13) $I = \{x/x = 5n, n \text{ is a Natural number less than } 20\}$ 19.....

14) $F = \{50,51,52,\dots,67\}$ 18.....

15) $W = \{\emptyset\}$ 1.....

Name..... Class No..... KruChaweng

Worksheet 1.4

1. Which of the following are finite or infinite set?

- 1) $\{x/x \text{ is a even integer numbers}\}$ **Infinite set**
2. $\{1,12,123,1234\}$ **finite set**
- 3) $\{x/x = \frac{1}{n}, n \text{ is natural number}\}$ **Infinite set**
- 4) $\{x/x = \frac{1}{n}, n \text{ is natural number less than 999}\}$ **finite set**
- 5) $\{x/x \text{ is a integer multiple of 3}\}$ **Infinite set**
- 6) $\{x/x \text{ is a integer multiple of 3 and less than 200}\}$ **Infinite set**
- 7) $\{1,2,3,\dots,100\}$ **finite set**
- 8) $\{x/x \in R \text{ and } x^2 < 0\}$ **finite set**

2) Which of the following are empty sets?

- 1) $A = \{x/x \text{ is a positive integer between 3 and 4}\}$ **Empty set**
- 2) $C = \{x/x \text{ is a integer greater than 1 but less than 2}\}$ **Empty set**
- 3) $M = \{x/x \text{ is a prime number greater than 3 but less than 10}\}$ **Not Empty set**
- 4) $N = \{x/x \text{ is a integer between 0 and 4}\}$ **Not Empty set**
- 5) $R = \{x/x \in N, \text{ and } x^2 - 2x + 8 = 0\}$ **Empty set**

Name.....ClassNo.....KruChaweng

Worksheet 1.5

1. Which of the following represent a pair of equal

1) $E = \{7, 14, 21, \dots, 343\}$

$F = \{x/x = 7n, n \text{ is a natural number less than } 50\}$

$E = \{7, 14, 21, \dots, 343\} \quad F = \{7, 14, 21, \dots, 343\} \quad E = F$

2) $A = \{x/x = 1 - \frac{1}{n}, n \text{ is a natural number}\}$

$B = \{0, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \dots\} \quad A = \{0, \frac{1}{2}, \frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \dots\} \quad A = B$

4) $A = \{1, 2, 3, 4, 5\}$

$B = \{5, 4, 3, 2, 1\} \quad A = B$

5) $C = \{0, 1, 3, 7\}$

$D = \{x/x \text{ is a integer number less than } 10\} \quad D = \{9, 8, 7, 6, \dots\} \quad C \neq D$

6) $E = \{12, 14, 16, 18\}$

$F = \{14, 16, 12, 18\} \quad E = F$

7) $K = \{x/x \text{ is a even integer number less than } 10\}$

$L = \{2, 4, 6, 8\} \quad L \neq K$

8) $M = \{x/x \text{ is a Integer and } x^2 = 36\}$

$N = \{6\} \quad M \neq N$

Worksheet 1.6

1. Each of the following is True (T) or False (F)

..... **T** 1) Empty set is finite

..... **F** 2) $a \in \{\{a\}, b\}$

..... **T** 3) $2.8 \in \{x \in \mathbb{R} / 2 < x < 4\}$

..... **F** 4) $\emptyset \in \emptyset$

..... **T** 5) $7 \in \{1, 2, 3, 4, \dots, 10\}$

..... **T** 6) $\{a, b\} \in \{a, \{b\}, \{a, b\}\}$

..... **T** 7) $\emptyset \in \{\emptyset\}$

..... **T** 8) $A = \{\{1, 2, 3, 4\}\}$ so that $n(A) = 1$

..... **F** 9) $\{0\} \in \emptyset$

..... **T** 10) $B = \{1, 2, 3, 4\}$ so that $n(B) = 4$

..... **T** 11) $A = \{1, 2, 3, 4\}$ and $B = \{1, 2, 3, 4\}$ so that $A = B$

..... **T** 12) $A = \{\sqrt{4}, \sqrt{9}, \sqrt{16}\}$ and $B = \{\frac{4}{2}, \frac{6}{2}, \frac{8}{2}\}$ so that $A = B$

..... **T** 13) $A = \{1234\}$ and $B = \{4321\}$ so that

A Comparable B (A เทียบเท่า B)

..... **T** 14) ถ้า A, B เป็นเซตใด ๆ และ $A=B$ แล้วจะได้ว่า

เซต A เทียบเท่าเซต B

..... **F** 15) ถ้า A, B เป็นเซตใด ๆ และ เซต A เทียบเท่าเซต B

แล้วจะได้ว่า $A=B$

Worksheet 2.1

1. Given $A = \{1,2,3,4\}$ Fill in the blank

1.1 Subset of set A from 0 element

..... ϕ

1.2 Subset of set A subset from one element

..... $\{1\}, \{2\}, \{3\}, \{4\}$

1.3 Subset of set A from two element

..... $\{1,2\}, \{1,3\}, \{1,4\}, \{2,3\}, \{2,4\}, \{3,4\}$

1.4 Subset of set A from three element

..... $\{1,2,3\}, \{1,2,4\}, \{1,3,4\}, \{2,3,4\}$

1.5 Subset of set A from four element

..... $\{1,2,3,4\}$

1.6 Subset of set A from All element

... $\phi, \{1\}, \{2\}, \{3\}, \{4\}, \{1,2,3\}, \{1,2,4\}, \{1,3,4\}, \{2,3,4\}, \{1,2,3\}, \{1,2,4\}, \{2,3,4\}, \{1,2,3,4\}$

1.7 The proper subset of set A

..... $\phi, \{1\}, \{2\}, \{3\}, \{4\}, \{1,2,3\}, \{1,2,4\}, \{1,3,4\}, \{2,3,4\}, \{1,2,3\}, \{1,2,4\}, \{2,3,4\}$

1.8 Power set of set A

..... $\{\phi, \{1\}, \{2\}, \{3\}, \{4\}, \{1,2,3\}, \{1,2,4\}, \{1,3,4\}, \{2,3,4\}, \{1,2,3\}, \{1,2,4\}, \{2,3,4\}, \{1,2,3,4\}\}$...

2. Given $B = \{\{0\}, \{1\}, \{1,2\}\}$ Fill in the blank

2.1 Subset of set B from 0 element

..... ϕ

2.2 Subset of set B subset from one element

..... $\{\{0\}, \{1\}, \{1,2\}\}$

2.3 Subset of set B from two element

..... $\{\{0\}, \{1\}, \{\{0\}, \{1,2\}\}, \{\{1\}, \{1,2\}\}\}$

2.4 Subset of set B from three element

..... $\{\{0\}, \{1\}, \{1,2\}\}$

2.5 Subset of set B from All element

..... $\phi, \{\{0\}, \{1\}, \{1,2\}\}, \{\{0\}, \{1\}\}, \{\{0\}, \{1,2\}\}, \{\{1\}, \{1,2\}\}, \{\{0\}, \{1\}, \{1,2\}\}$

2.6 The proper subset of set B

..... $\phi, \{\{0\}, \{1\}, \{1,2\}\}, \{\{0\}, \{1\}\}, \{\{0\}, \{1,2\}\}, \{\{1\}, \{1,2\}\}$

2.7 Power set of set B

..... $\phi, \{\{0\}, \{1\}, \{1,2\}\}, \{\{0\}, \{1\}\}, \{\{0\}, \{1,2\}\}, \{\{1\}, \{1,2\}\}, \{\{0\}, \{1\}, \{1,2\}\}$

3. Given $C = \{2,5\}$ Fill in the blank

3.1 Subset of set C from 0 element

..... ϕ

3.2 Subset of set C subset from one element

..... $\{2\}, \{5\}$

3.3 Subset of set C from two element

..... {2,5}

3.4 Subset of set C from All element

..... ϕ , {2},{5},{2,5}

3.5 The proper subset of set C

..... ϕ , {2},{5}

3.6 Power set of set C

..... { ϕ , {2},{5},{2,5}}

Worksheet 2.2

1. Given $D = \{\emptyset, \{\emptyset\}\}$ Fill in the blank

1.1 Subset of set D from 0 element

..... \emptyset

1.2 Subset of set D subset from one element

..... $\{\emptyset, \{\emptyset\}\}$

1.3 Subset of set D from two element

..... $\{\emptyset, \{\emptyset\}\}$

1.4 Subset of set D from All element

..... $\emptyset, \{\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}$

1.5 The proper subset of set D

..... $\emptyset, \{\emptyset, \{\emptyset\}\}$

1.6 Power set of set D

..... $\{\emptyset, \{\emptyset, \{\emptyset\}, \{\emptyset, \{\emptyset\}\}\}$

2. Write down all the subset Each of the following

2.1 $\{1\}$ $\emptyset, \{1\}$

2.2 $\{1,2\}$ $\emptyset, \{1\}, \{2\}, \{1,2\}$

3. Write down Power set Each of the following

3.1 $\{5\}$ $\{\emptyset, \{5\}\}$

3.2 $\{0,1\}$ $\{\emptyset, \{0\}, \{1\}, \{0,1\}\}$

3.3. $\{2,3,4\}$ $\{\emptyset, \{2\}, \{3\}, \{4\}, \{2,3\}, \{2,4\}, \{3,1\}, \{2,3,4\}\}$

4. Given $A = \{1,2,3\}$ Each of the following is True (T) or False (F)

- T 1) $2 \in A$
- F 2) $\{2,3\} \in A$
- T 3) $\{2,3\} \subset A$
- F 4) $\{3\} \in A$
- T 5) $\{3\} \subset A$
- F 6) $\{3,4\} \subset A$
- F 7) $3 \subset A$
- F 8) $\{2,3,4\} \subset A$
- T 9) $\{1,2,3\} \subset A$
- T 10) $\{1,2,3\} \in P(A)$
- T 11) $\{1,3\} \subset A$
- F 12) $\{1,2\} \subset P(A)$
- T 13) $\emptyset \subset A$
- F 14) $\emptyset \in A$
- T 15) $\{2\} \notin A$
- T 16) $\emptyset \in P(A)$
- F 17) $n(A) = 8$
- T 18) $\{1\} \in P(A)$

Worksheet 3.1

1. If $A = \{1,2,3\}$ and $B = \{2, 4, 5\}$ Find

1.1 $A \cup B$ $\{1,2,3,4,5\}$

1.2 $B \cup A$ $\{1,2,3,4,5\}$

1.3 $A \cap B$ $\{2\}$

1.4 $B \cap A$ $\{2\}$

1.5 $A \cup \phi$ $\{1,2,3\}$

1.6 $A \cap \phi$ $\{1,2,3\}$

2. If $A = \{1,3,5,7\}$, $B = \{1,2,3,4\}$ and $C = \{3,5,7,9\}$ Find

2.1 $A \cup B$
..... $\{1,2,3,4,5,7\}$

2.2 $(A \cup B) \cup C$
.....

2.3 $B \cup C$
.....

2.4 $A \cap \phi$
.....

2.5 $A \cup \phi$
.....

2.6 $B \cap C$
.....

2.7 $A \cap (B \cap C)$
.....

2.8 $A \cup (B \cap C)$

.....
.....

2.9 $(A \cap B) \cup (C \cap B)$

.....
.....

2.10 $(A \cup C) \cap (B \cup C)$

.....
.....

2.11 $(A \cup B) \cap C$

.....
.....

2.12 $(A \cap B) \cap (B \cap C)$

.....
.....

2.13 $(A \cup B) \cup (B \cup C)$

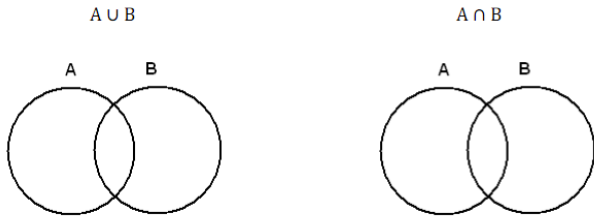
.....
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2.14 $(A \cap B) \cup C$

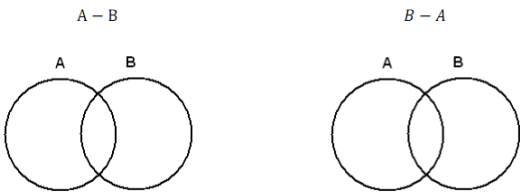
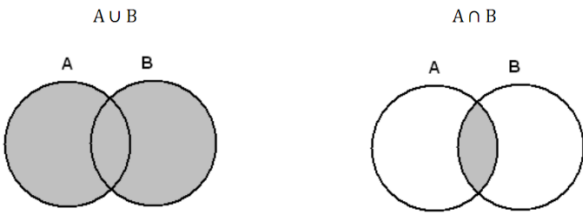
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Worksheet 3.2

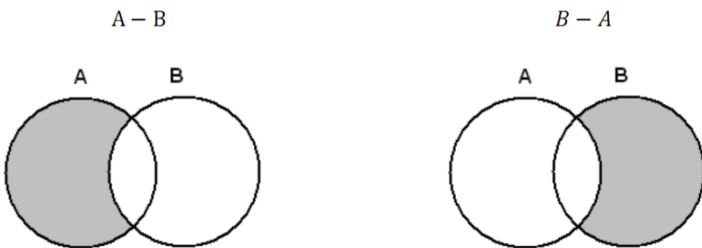
1. Shade the following in Venn diagrams:



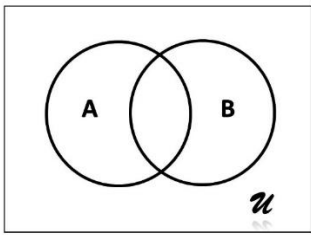
Shade the following in Venn diagram: (Answers)



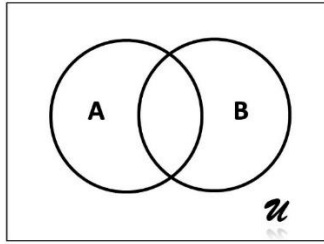
Shade the following in Venn diagram: (Answers)



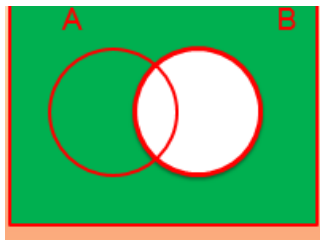
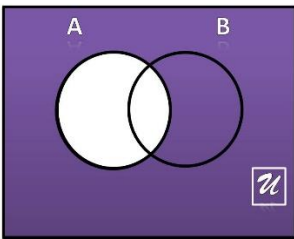
A'



B'



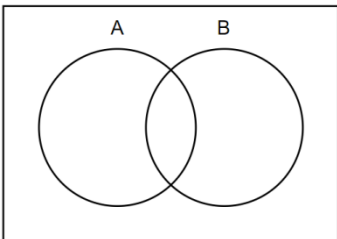
Shade the following in Venn diagram: (Answers)



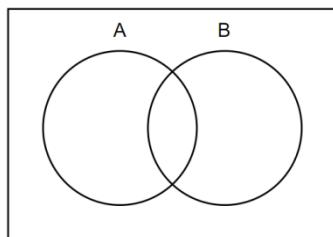
2. Shade the following in Venn diagrams:

1) B'

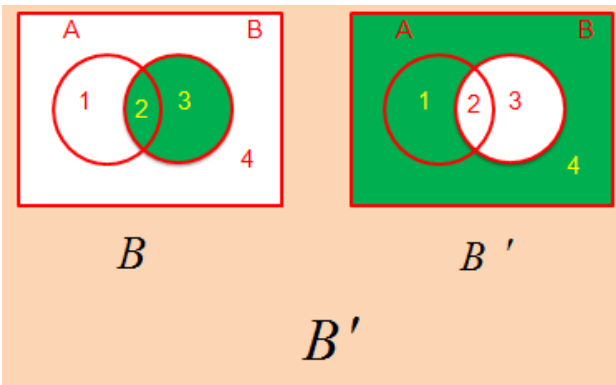
B

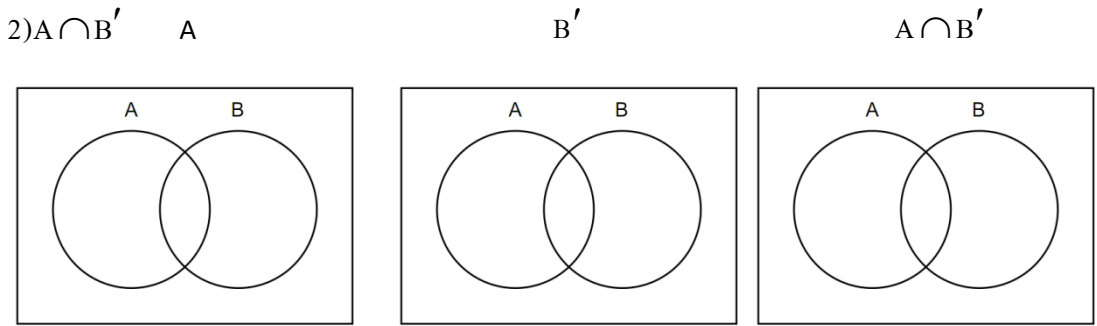


B'

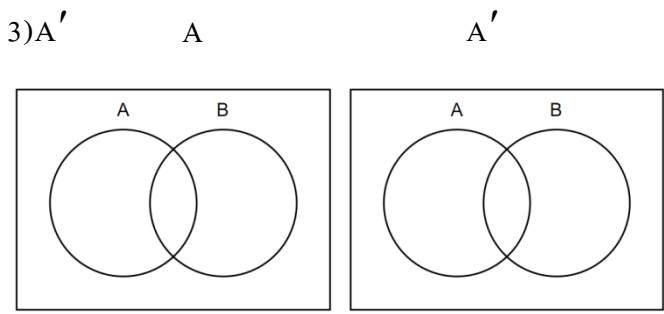
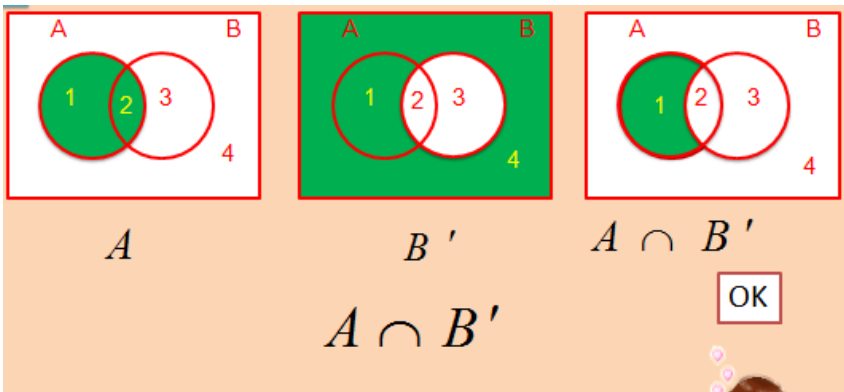


Shade the following in Venn diagram: (Answers)

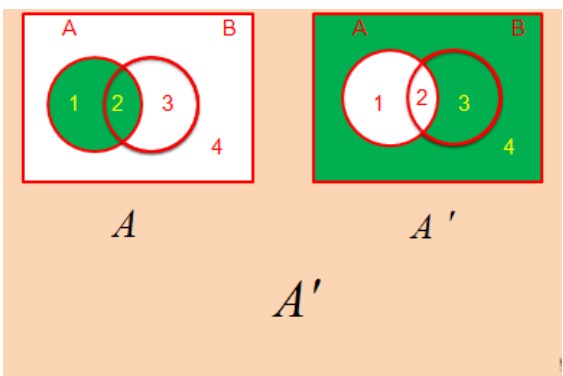




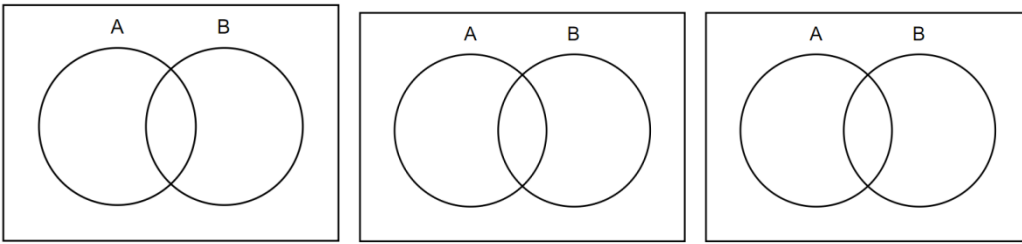
Shade the following in Venn diagram: (Answers)



Shade the following in Venn diagram: (Answers)

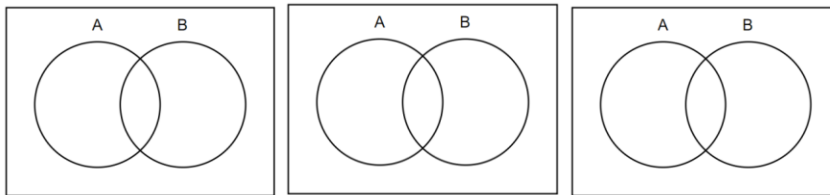


4) $A' \cup B$ A' B $A' \cup B$



Shade the following in Venn diagram: (Answers)

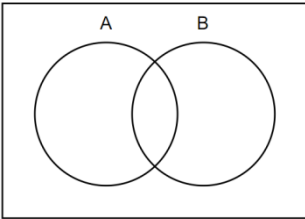
5) $A' \cup B'$ A' B' $A' \cup B'$



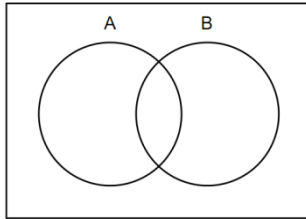
Shade the following in Venn diagram: (Answers)

3. Shade the following in Venn diagrams:

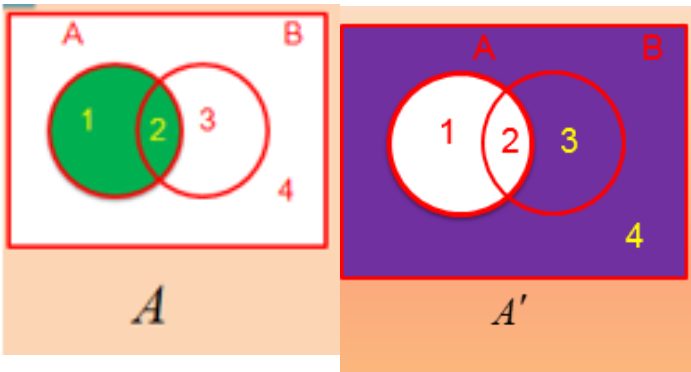
1) A' A



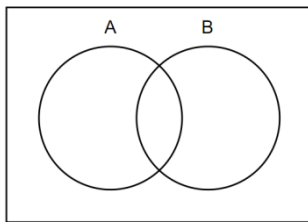
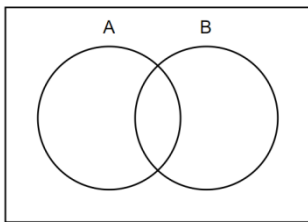
A'



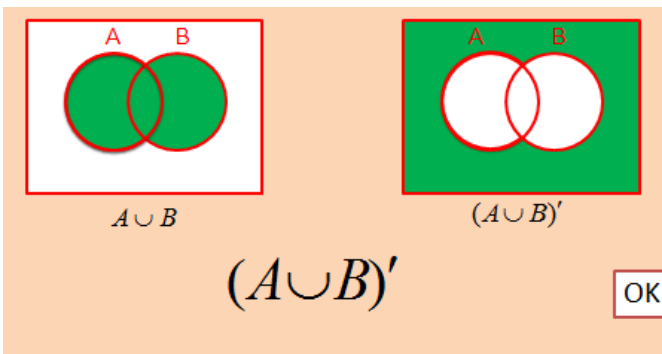
Shade the following in Venn diagram: (Answers)



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



Shade the following in Venn diagram: (Answers)

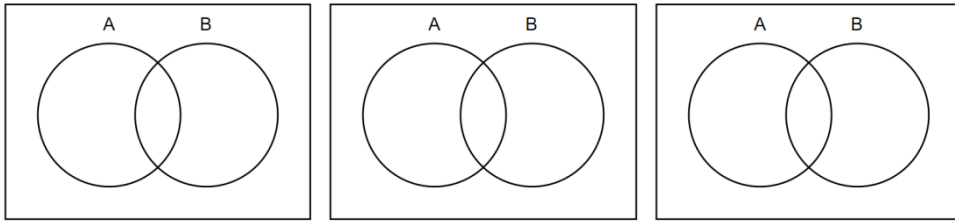


3) $A' \cup B$

A'

B

$A' \cup B$



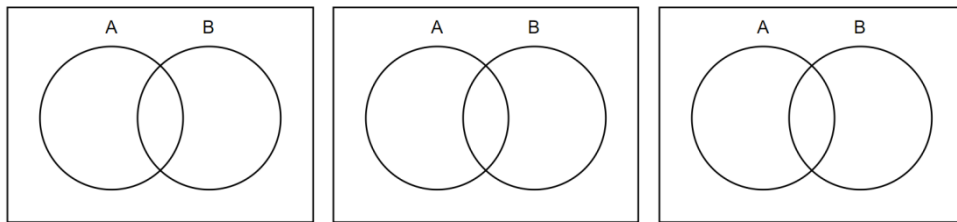
Shade the following in Venn diagram: (Answers)

4) $A' \cap B$

A'

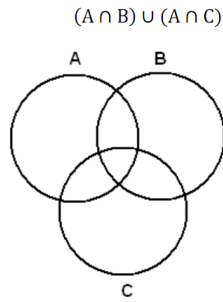
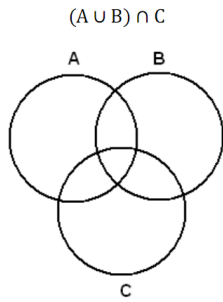
B

$A' \cap B$

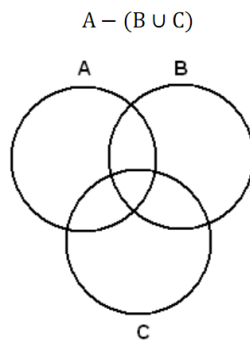
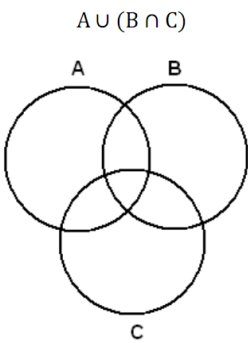
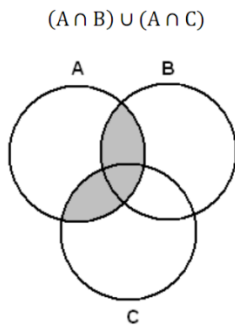
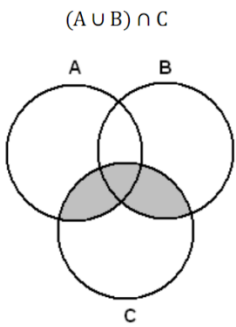


Shade the following in Venn diagram: (Answers)

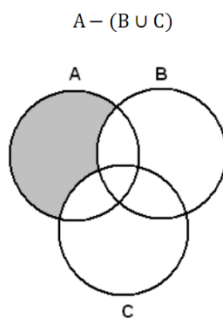
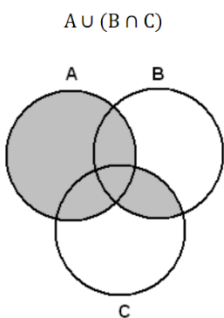
4. Shade the following in Venn diagrams:



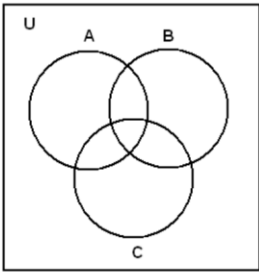
Shade the following in Venn diagram: (Answers)



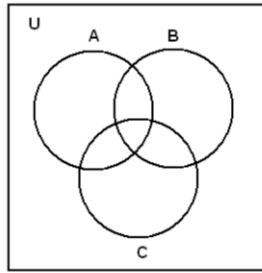
Shade the following in Venn diagram: (Answers)



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

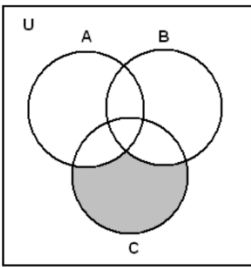


$$B' \cap (A \cap C)$$

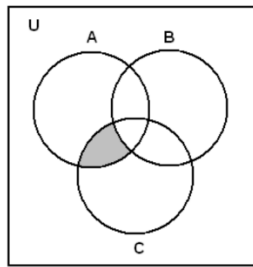


Shade the following in Venn diagram: (Answers)

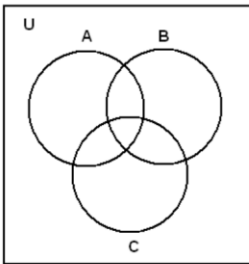
$$(A \cup B)' \cap C$$



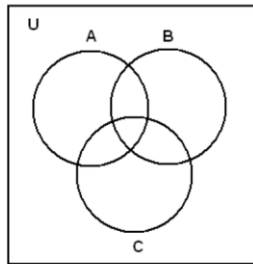
$$B' \cap (A \cap C)$$



$$A' - (B \cup C)$$

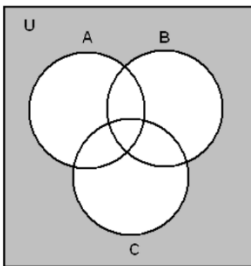


$$(A \cap B) \cup C$$

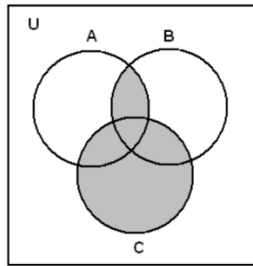


Shade the following in Venn diagram: (Answers)

$$A' - (B \cup C)$$

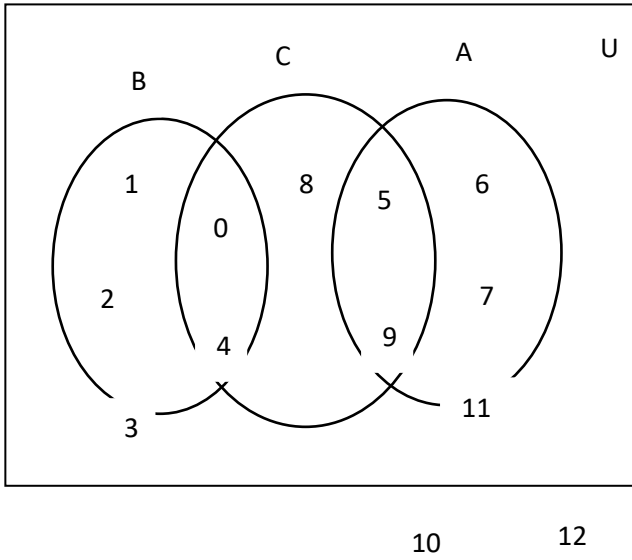


$$(A \cap B) \cup C$$



5. Given Venn

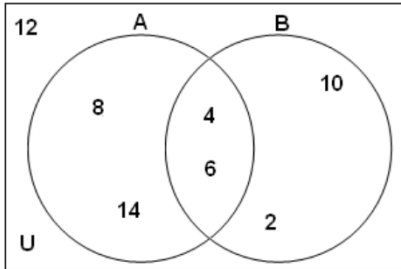
diagrams Write the following in the set-tabular form



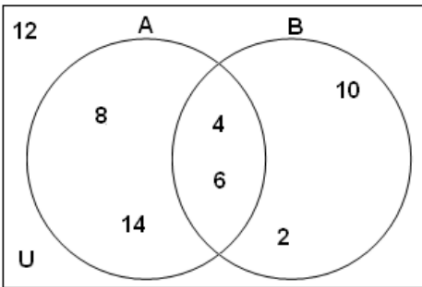
- 1) U $\{0,1,2,3,4,5,6,7,8,9,10,11,12\}$
- 2) A $\{5,6,7,9,11\}$
- 3) B $\{0,1,2,3,4\}$
- 4) C $\{0,4,5,8,9\}$
- 5) $B \cap A$ $\{ \}$
- 6) $B \cap C$ $\{0,4\}$
- 7) $A \cap C$ $\{5,9\}$
- 8) $A \cup (B \cap C)$ $\{0,4,5,6,7,9,11\}$
- 9) $(A \cap B) \cup (C \cap B)$ $\{0,4,5,9\}$
- 10) $(A \cup C) \cap (B \cup C)$ $\{8\}$
- 11) $(A \cup B) \cap C$ $\{0,4,5,9\}$
- 12) $(A \cap B) \cap (B \cap C)$ $\{ \}$
- 13) $(A \cup B) \cup (B \cup C)$ $\{0,1,2,3,4,5,6,7,8,9,11,\}$

Worksheet 3.3

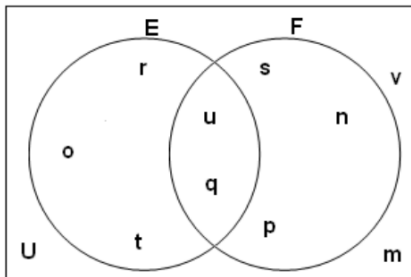
1. Fill in the blanks using Venn diagrams:



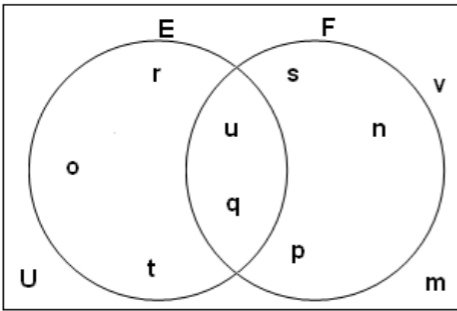
$A \cup B' =$ _____
 $A' \cup B =$ _____
 $A' \cap B =$ _____
 $A \cap B' =$ _____



$A \cup B' = \{4,6,8,12,14\}$
 $A' \cup B = \{2,4,6,10,12\}$
 $A' \cap B = \{2,10\}$
 $A \cap B' = \{8,14\}$



$E' - F =$ _____
 $E - F' =$ _____
 $E' - F' =$ _____
 $F' - E' =$ _____

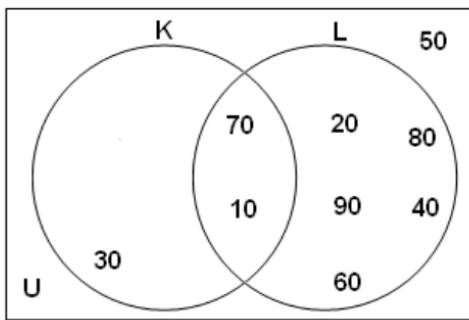


$$E' - F = \{m, v\}$$

$$E - F' = \{q, u\}$$

$$E' - F' = \{n, p, s\}$$

$$F' - E' = \{o, r, t\}$$

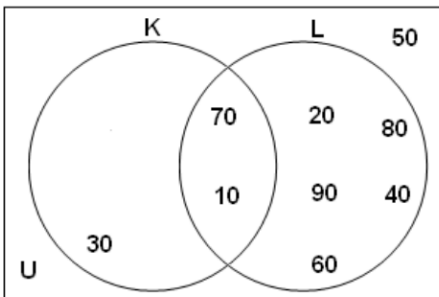


$$(A \cup B)' = \underline{\hspace{2cm}}$$

$$(A \cap B)' = \underline{\hspace{2cm}}$$

$$(A')' \cup A = \underline{\hspace{2cm}}$$

$$(B')' \cap B = \underline{\hspace{2cm}}$$

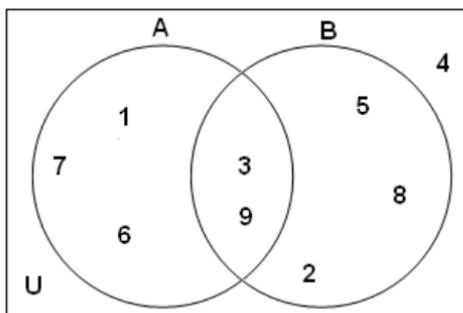


$$(K \cup L)' = \{50\}$$

$$(K \cap L)' = \{20, 30, 40, 50, 60, 80, 90\}$$

$$(K')' \cup L = \{10, 20, 30, 40, 60, 70, 80, 90\}$$

$$K \cap (L)' = \{10, 70\}$$

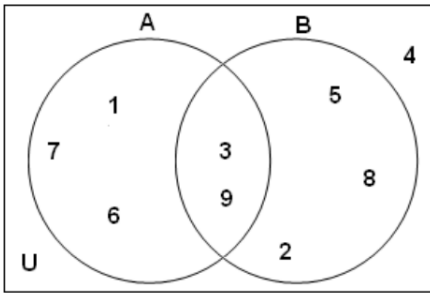


$$A' \cup B' = \underline{\hspace{2cm}}$$

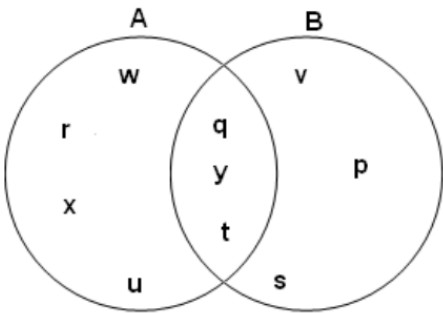
$$A' \cap B' = \underline{\hspace{2cm}}$$

$$(A \cup A)' = \underline{\hspace{2cm}}$$

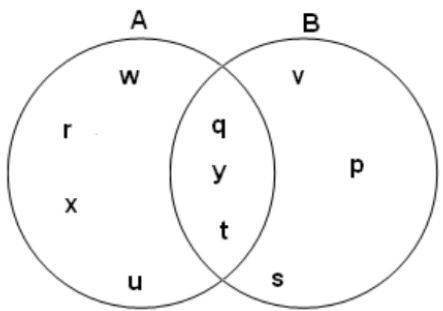
$$(B \cap B)' = \underline{\hspace{2cm}}$$



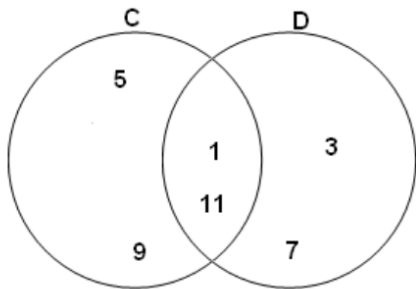
$A' \cup B' = \{1,2,4,5,6,7,8\}$
 $A' \cap B' = \{4\}$
 $(A \cup B)' = \{2,4,5,8\}$
 $(A \cap B)' = \{1,4,6,7\}$



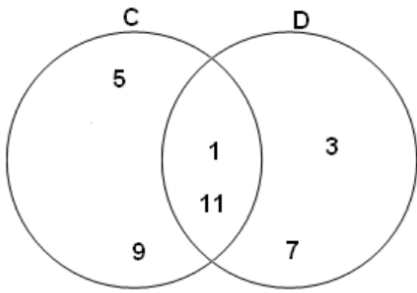
Elements of A or B = _____
Elements of A and B = _____
Elements of only A = _____
Elements of only B = _____



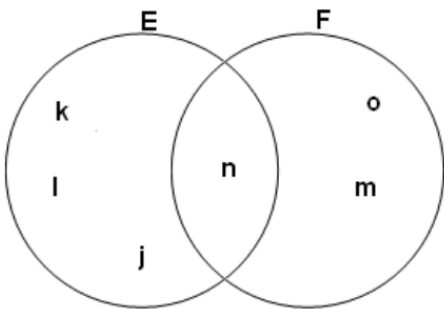
Elements of A or B = {p, q, r, s, t, u, v, w, x, y}
Elements of A and B = {q, t, y}
Elements of only A = {r, u, w, x}
Elements of only B = {v, p, s}



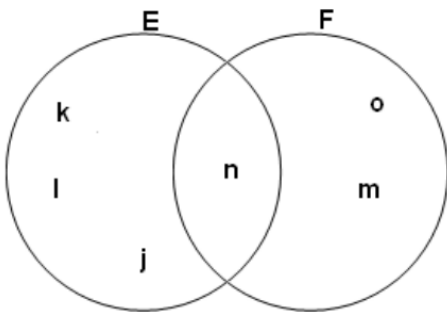
Elements of C or D = _____
Elements of C and D = _____
Elements of only C = _____
Elements of only D = _____



Elements of C or D = {1,3,5,7,9,11}
Elements of C and D = {1,11}
Elements of only C = {5,9}
Elements of only D = {3,7}



Elements of E or F = _____
Elements of E and F = _____
Elements of only E = _____
Elements of only F = _____

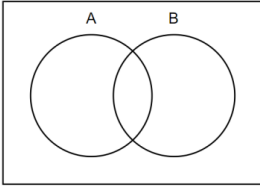


Elements of E or F = {j, k, l, m, n, o}
Elements of E and F = {n}
Elements of only E = {j, k, l}
Elements of only F = {m, o}

Worksheet 3.4

1. In diagram given that $n(u)=100$ $n(A)=40$, $n(B)=25$

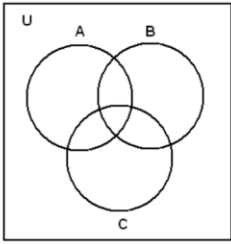
and $A \cap B = 6$ fill in the boxes



Set	$A - B$	$B - A$	$A \cup B$	A'	B'	$(A \cup B)'$
Number of elements						

Set	A-B	B-A	AUB	A'	B'	(A ∪ B)'
N(E)	34	19	59	60	75	41

2. Given number of element in the table



Set	U	A	B	C	$A \cap B$	$A \cap C$	$B \cap C$	$A \cap B \cap C$
Number of elements	50	25	20	30	12	15	10	5

set	U	A	B	C	$(A \cap B)$	$(A \cap C)$	$(B \cap C)$	$(A \cap B \cap C)$
N(E)	50	25	20	30	12	15	10	5

set	U	A	B	C	$(A \cap B)$	$(A \cap C)$	$(B \cap C)$	$(A \cap B \cap C)$
N(E)	50	25	20	30	12	15	10	5

Find number of element in the following

1) $A \cup C$

$n(A \cup C) = n(A) + n(C) - n(A \cap C)$
 $n(A \cup C) = (25) + (30) - 15 = 40$

2) $A \cup B \cup C$

$n(A \cup B \cup C) = n(A) + n(B) + n(C) - n(A \cap B) - n(A \cap C) - n(B \cap C) + n(A \cap B \cap C)$
 $n(A \cup B \cup C) = 25 + 20 + 30 - 12 - 15 - 10 + 5 = 43$

3) $(A \cup B \cup C)'$

3

$n(A \cup B \cup C)' = n(U) - n(A \cup B \cup C)$
 $n(A \cup B \cup C)' = 50 - 43 = 7$

4) $B - (A \cup C)$

4

$n(B - (A \cup C)) = n(B) - n(A \cap B) - n(B \cap C) + n(A \cap B \cap C)$
 $n(B - (A \cup C)) = 20 - 12 - 10 + 5 = 3$

5) $(A \cap B) - C$

$n((A \cap B) - C) = n(A \cap B) - n(A \cap B \cap C)$
 $n((A \cap B) - C) = 12 - 9 = 3$

Worksheet 3.5

1. The inquiry found that Butler There are people who drink tea or coffee is 120 .

There are those who like to drink coffee is 60, like to drink tea is 70 How many guys who like to drink tea .

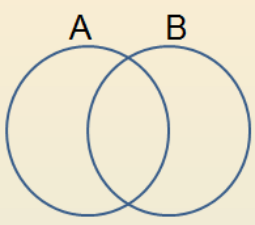
And coffee

จากการสอบถามพ่อบ้านพบว่า มีผู้ที่ดื่มชาหรือกาแฟเป็นประจำจำนวน 120 คน

มีผู้ชอบดื่มชา 60 คน ชอบดื่มกาแฟ 70 คน จงหาจำนวนพ่อบ้านที่ชอบดื่มทั้งชา

และกาแฟ

ให้ A แทนเซตของพ่อบ้านที่ชอบดื่มชา	
B แทนเซตของพ่อบ้านที่ชอบดื่มกาแฟ	
$A \cap B$	แทนเซตของพ่อบ้านที่ชอบดื่มชาและกาแฟ
$A \cup B$	แทนเซตของพ่อบ้านที่ชอบดื่มชาหรือกาแฟ
$n(A) = 60$ คน	$n(A \cup B) = 120$
$n(B) = 70$ คน	$n(A \cap B) = x$

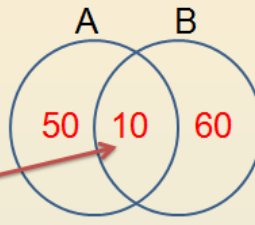


$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$120 = 60 + 70 - x$$

$$120 = 130 - x$$

$$x = 130 - 120$$

$$x = 10$$


พ่อบ้านที่ชอบดื่มชาและกาแฟ = 10 คน

OK

2. Shops , a survey of customers showed that about 60% of the fan .

45 % use desktop fan of ceiling and 15 % use both types to know one customers who are not fans of both species has a few percent.

ร้านค้าแห่งหนึ่งได้ทำการสำรวจความนิยมของลูกค้าเกี่ยวกับการใช้พัดลม พบว่า 60 %

ใช้พัดลมชนิดตั้งโต๊ะ 45 % ใช้ชนิดแขวนเพดาน และ 15 % ใช้ทั้งสองชนิด อยากทราบว่า

- 1) ลูกค้าที่ไม่ใช้พัดลมทั้งสองชนิดนี้มีกี่เปอร์เซ็นต์
- 2) ลูกค้าที่ใช้พัดลมเพียงชนิดเดียวมีกี่เปอร์เซ็นต์

2) ลูกค้าที่ใช้พัดลมเพียงชนิดเดียวมีกี่เปอร์เซ็นต์

1) $n(A \cup B) = n(A) + n(B) - n(A \cap B)$

$x = 60 + 45 - 15$

$x = 90$

ลูกค้าที่ไม่ใช้พัดลมทั้งสองชนิด = $100 - 90 = 10$

2) ลูกค้าที่ใช้พัดลมเพียงชนิดเดียวมีกี่เปอร์เซ็นต์

2) $= n(A - B) + n(B - A)$

$= 45 + 30$

$= 75$

ลูกค้าที่ใช้พัดลมเพียงชนิดเดียว = 75 %

3 . One hospital survey data from patients older than 40 years is 1,000 .

It appears that smokers have lung cancer, 312 men and 660 among 180 people .

Smoking and lung cancer are smokers and I know that lung cancer is the number .

How much and how much per cent of all smokers

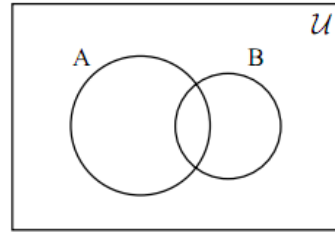
โรงพยาบาลแห่งหนึ่งทำการสำรวจข้อมูลจากผู้ป่วยที่มีอายุเกิน 40 ปี จำนวน 1,000 คน

ปรากฏว่า มีคนสูบบุหรี่ 312 คน มีคนเป็นมะเร็งปอด 180 คน และมี 660 คน ไม่สูบ

บุหรี่ยและไม่เป็นมะเร็งที่ปอด อยากทราบว่า มีผู้สูบบุหรี่และเป็นมะเร็งที่ปอดจำนวน

เท่าใด และคิดเป็นร้อยละเท่าใดของจำนวนผู้สูบบุหรี่ทั้งหมด

9.



ให้ \mathcal{U} แทนเซตของผู้ป่วยทั้งหมดที่ทำการสำรวจ

A แทนเซตของผู้ป่วยที่สูบบุหรี่

B แทนเซตของผู้ป่วยที่เป็นมะเร็งในปอด

$A \cup B$ แทนเซตของผู้ป่วยที่สูบบุหรี่หรือเป็นมะเร็งในปอด

$A \cap B$ แทนเซตของผู้ป่วยที่สูบบุหรี่และเป็นมะเร็งในปอด

$(A \cup B)'$ แทนเซตของผู้ป่วยที่ไม่สูบบุหรี่ และไม่เป็นมะเร็งที่ปอด

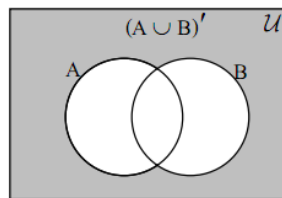
$$n(\mathcal{U}) = 1,000 \text{ คน}$$

$$n(A) = 312 \text{ คน}$$

$$n(B) = 180 \text{ คน}$$

$$n(A \cup B)' = 660 \text{ คน}$$

$$n(A \cap B) = x \text{ คน}$$



$$n(A \cup B) = n(\mathcal{U}) - n(A \cup B)' = 1,000 - 660 = 340$$

$$n(A \cup B) = n(A) + n(B) - n(A \cap B)$$

$$340 = 312 + 180 - x$$

$$x = 492 - 340 = 152$$

ดังนั้น จำนวนผู้ที่สูบบุหรี่และเป็นมะเร็งที่ปอดเท่ากับ 152 คน คิดเป็นร้อยละ $\frac{152}{312} \times 100$

หรือ 48.72% ของจำนวนผู้สูบบุหรี่ทั้งหมด