



MATHS

NCERT - NCERT Maths(Tamil)

SETS

Example

1. Let $A=\{2,5,6,8\}$ and $B=\{5,7,9,1\}$. Find $A \cup B$



Watch Video Solution

2. Let $A=\{a,e,l,o,u\}$ and $B=\{a,l,u\}$. Show that $A \cup B = A$



[Watch Video Solution](#)

3. If $A=\{1,2,3,4\}$ and $B=\{2,4,6,8\}$. Find $A \cup B$



[Watch Video Solution](#)

4. Find $A \cap B$ when $A=\{5,6,7,8\}$ and $B=\{7,8,9,10\}$



[Watch Video Solution](#)

5. If $A=\{1,2,3\}$ and $B=\{3,4,5\}$ then illustrate $A \cap B$ in Venn- diagrams.



[Watch Video Solution](#)

6. Let $A=\{1,2,3,4,5\}$, $B=\{4,5,6,7\}$. Find $A-B$.



[Watch Video Solution](#)

7. If $A=\{p,q,r\}$ and $B=\{q,p,r\}$. Then check whether $A=B$ or not.



[Watch Video Solution](#)

8. If $A = \{1, 2, 3, \dots\}$ and N is the set of natural numbers, then check whether A and N are equal?



[Watch Video Solution](#)

9. Consider the sets $A = \{p, q, r, s\}$ and $B = \{1, 2, 3, 4\}$.
Are they equal?



[Watch Video Solution](#)

10. Let A be the set of prime number smaller than 6 and B be the set of prime factors of 30. Check if A and B are equal.



Watch Video Solution

11. Show that the sets C and B are equal, where
 $C = \{x : x \text{ is a letter in the word 'ASSASSINATION'}\}$
 $B = \{x : x \text{ is a letter in the word STATION}\}$



Watch Video Solution

12. Consider the sets ϕ , $A = \{1, 3\}$, $B = \{1, 5, 9\}$, $C = \{1, 3, 5, 7, 9\}$

. Insert the symbol \subset or $\not\subset$ between each of the following pair of sets.

(i) $\phi \dots B$ (ii) $A \dots B$ (iii) $A \dots C$ (iv) $B \dots C$



[Watch Video Solution](#)

13. State which of the following sets are finite or infinite :

(i) $\{x : x \in N \text{ and } (x-1)(x-2) = 0\}$

(ii) $\{x : x \in N \text{ and } x^2 = 4\}$

(iii) $\{x : x \in N \text{ and } 2x - 1 = 0\}$

(iv) $\{x : x \in N \text{ and } x \text{ is prime}\}$

(v) $\{x : x \in N \text{ and } x \text{ is odd}\}$



[Watch Video Solution](#)

14. If $A = \{1, 2, 3, 4, 5\}$, $B = \{2, 4, 6, 8\}$ then find $n(A \cup B)$.



[Watch Video Solution](#)

Exercise 2 1

1. Which of the following are sets? Justify your answer

(i) The collection of all the months of a year beginning with the letter "J".

(ii) The collection of ten most talented writers of India.

(iii) A team of eleven best cricket batsmen of the world.

(iv) The collection of all boys in your class.

(v) The collection of all even integers.



[Watch Video Solution](#)

2. If $A=\{0,2,4,6\}$, $B=\{3,5, 7\}$ and $C=\{p, q, r\}$, then fill the appropriate symbol \in or \notin or in the blanks

(i) $0 \dots A$ (ii) $3 \dots C$ (iii) $4 \dots B$

(iv) $8 \dots A$ (v) $p \dots C$ (vi) $7 \dots B$



[Watch Video Solution](#)

3. Express the following statements using symbols.

(i) The element 'x' does not belong to 'A'.

(ii) d' is an element of the set 'B'.

(iii) '1' belongs to the set of Natural numbers.

(iv) '8' does not belong to the set of prime numbers P.



[Watch Video Solution](#)

4. State whether the following statements are true or false. Justify your answer

(i) $5 \notin$ set of prime numbers

(ii) $S=\{5,6,7\}$ implies $8 \in S$.

(iii) $-5 \notin W$ where 'W' is the set of whole numbers

(iv) $\frac{8}{11} \in Z$ where's 'Z' is the set of integers.



[Watch Video Solution](#)

5. Write the following sets in roster form

(i) $B = \{x : x \text{ is a natural number smaller than } 6\}$

(ii) $C = \{x : x \text{ is a two-digit natural number such that the sum of its digits is } 8\}$.

(iii) $D = \{x : x \text{ is a prime number which is a divisor of } 60\}$.

(iv) $E = \{x : x \text{ is an alphabet in BETTER}\}$.



[Watch Video Solution](#)

6. Write the following sets in the set-builder form

(i) $\{3,6,9,12\}$ (ii) $\{2,4,8,16,32\}$

(iii) $\{5,25,125,625\}$ (iv) $\{1,4,9,16,25, \dots, 100\}$



[Watch Video Solution](#)

7. Write the following sets in roster form

(i) $A = \{x : x \text{ is a natural number greater than } 50 \text{ but smaller than } 100\}$

(ii) $B = \{x : x \text{ is an integer, } x^2 = 4\}$

(iii) $D = \{x : x \text{ is a letter in the word "LOYAL"}\}$



Watch Video Solution

8. Match the roster form with set builder form.

(i) $\{1,2,3,6\}$ (a) $\{x : x \text{ is prime number and a divisor of } 6\}$

(ii) $\{2,3\}$ (b) $\{x : x \text{ is an odd natural number smaller than } 10\}$

(iii) $\{m,a,t,h,e,l,c,s\}$ (c) $\{x : x \text{ is a natural number and divisor of } 6\}$

(iv) $\{1,3,5,7,9\}$ (d) $\{x : x \text{ is a letter of the word MATHEMATICS}\}$



Watch Video Solution

Exercise 2 2

1. If $A=\{1,2,3,4\}$ and $B=\{1,2,3,5,6\}$, then find $A \cap B$ and $B \cap A$. Are they equal.



[Watch Video Solution](#)

2. If $A=\{0,2,4\}$, find $A \cap \phi$ and $A \cap A$.

Comment.



[Watch Video Solution](#)

3. If $A=\{2,4,6,8,10\}$ and $B=\{3,6,9,12,15\}$. Find $A-B$ and $B-A$.



[Watch Video Solution](#)

4. If A and B are two sets such that $A \subset B$ then what is $A \cup B$?



[Watch Video Solution](#)

5. Let $A = \{x : x \text{ is a natural number}\}$, $B = \{x : x \text{ is an even natural number}\}$

$C = \{x : x \text{ is an odd natural number}\}$ and $D = \{x : x \text{ is a prime number}\}$

Find

$A \cap B$, $A \cap C$, $A \cap D$, $B \cap C$, $B \cap D$ and $C \cap D$

.



[Watch Video Solution](#)

6. If $A = \{3, 6, 9, 12, 15, 18, 21\}$, $B = \{4, 8, 12, 16, 20\}$

$C = \{2, 4, 6, 8, 12, 14, 16\}$ and $D = \{5, 10, 15, 20\}$, find

(i) A-B (ii) A-C (iii) A-D (iv) B-A (v) C-A

(vi) D-A (vii) B-C (viii) B-D (ix) C-B (x) D-B



Watch Video Solution

7. State whether each of the following statement is true or false. Justify your answer.

$\{2, 3, 4, 5\}$ and $\{3, 6\}$ are disjoint sets.



Watch Video Solution

Exercise 2 3

1. Which of the following sets are equal?

$A = \{x : x \text{ is a letter in the word FOLLOW}\}$, $B = \{x : x \text{ is a letter in the word FLOW}\}$ and $C = \{x : x \text{ is a letter in the word WOLF}\}$



Watch Video Solution

2. Consider the following sets and fill up the blanks with $=$ or \neq so as to make the statement true.

$A = \{1,2,3\}$ $B = \{\text{The first three natural numbers}\}$

$C = \{a,b,c,d\}$ $D = \{d,c,a,b\}$

$E = \{a, e, i, o, u\}$ $F = \{\text{sets of vowels in English Alphabet}\}$

(i) $A \dots B$ (ii) $A \dots E$ (iii) $C \dots D$

(iv) $D \dots F$ (v) $F \dots A$ (vi) $D \dots E$ (vii) $F \dots B$



Watch Video Solution

3. In the following, state whether $A = B$ or not:

$A = \{a, b, c, d\}$ $B = \{d, c, b, a\}$



Watch Video Solution

4. State the reasons for the following :

(i) $\{1,2,3,\dots,10\} \neq \{x : x \in N \text{ and } 1 < x < 10\}$

(ii) $\{2,4,6,8,10\} \neq \{x : x = 2n + 1 \text{ and } x \in N\}$

(iii) $\{5,15,30,45\} \neq \{x : x \text{ is a multiple of } 15\}$

(iv) $\{2,3,5,7,9\} \neq \{x : x \text{ is a prime number}\}$



[Watch Video Solution](#)

5. List all the subsets of the following sets.

(i) $B=\{p,q\}$ (ii) $C=\{x,y,z\}$ (iii) $D=\{a,b,c,d\}$ (iv)

$E=\{1,4,9,16\}$ (v) $F=\{10,100,1000\}$



[Watch Video Solution](#)

Exercise 2 4

1. State which of the following sets are empty and which are not?

(i) The set of lines passing through a given point.

(ii) Set of odd natural numbers divisible by 2.

(iii) $\{x : x \text{ is a natural number, } x < 5 \text{ and } x > 7\}$

(iv) $\{x : x \text{ is a common point to any two parallel}$

lines}

(v) Set of even prime numbers.



[Watch Video Solution](#)

2. State whether the following sets are finite or infinite.

(i) The set of months in a year.

(ii) $\{1, 2, 3, \dots, 99, 100\}$

(iii) The set of prime numbers smaller than 99.

(iv) The set of letters in the English alphabet.

(v) The set of lines that can be drawn are parallel to the X-axis

(vi) The set of numbers which are multiples of 5.

(vii) The set of circles passing through the origin $(0,0)$.



[Watch Video Solution](#)

Do This

1. Identify and write the "common property" of the following collections.

2,4,6,8



[Watch Video Solution](#)

2. Identify and write the "common property" of the following collectons.

2,3,5,7,11



[Watch Video Solution](#)

3. Identify and write the "common property" of the following collectons.

1,4,9,16....



[Watch Video Solution](#)

4. Identify and write the "common property" of the following collectons.

January, February, March, April,....



[Watch Video Solution](#)

5. Identify and write the "common property" of the following collectons.

Thumb, index finger, middle finger, ring finger, pinky.



[Watch Video Solution](#)

 [Watch Video Solution](#)

6. Write the following sets:

Set of the first five positive integers.



[Watch Video Solution](#)

7. Write the following sets:

Set of multiples of 5 which are more than 100
and less than 125



[Watch Video Solution](#)

8. Write the following sets:

Set of first five cubic numbers.



Watch Video Solution

9. Write the following sets:

Set of digits in the Ramanujan number.



Watch Video Solution

10. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct symbol.

1



Watch Video Solution

11. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct

symbol.

0



[Watch Video Solution](#)

12. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct symbol.

-4



[Watch Video Solution](#)

13. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct symbols.

$$\frac{5}{6}$$



Watch Video Solution

14. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct

symbols.

1. $\bar{3}$



[Watch Video Solution](#)

15. A number is given below. Decide the number to which number sets it belongs to and does not belong to and express with correct symbols.

$\sqrt{2}$



[Watch Video Solution](#)

16. A number is given below. Decide the numbers to which numbers sets it belongs to and does not belongs to and express with correct symbols.

$\log 2$



[Watch Video Solution](#)

17. A number is given below. Decide the numbers to which numbers sets it belongs to and does not belongs to and express with

correct symbols.

0.03



[Watch Video Solution](#)

18. A number is given below. Decide the numbers to which numbers sets it belongs to and does not belongs to and express with correct symbols.

π



[Watch Video Solution](#)

19. A number is given below. Decide the number to which numbers sets it belongs to and does not belong to and express with correct symbols.

$$\sqrt{-4}$$



Watch Video Solution

20. List the elements of the following sets.

(i) $G = \{\text{all the factors of } 20\}$

(ii) $F = \{\text{multiples of } 4 \text{ between } 17 \text{ and } 61 \text{ which are divisible by } 7\}$

(iii) $S = \{x : x \text{ is a letter in the word 'MADAM'}\}$

(iv) $P = \{x : x \text{ is a whole number between } 3.5 \text{ and } 6.7\}$



[Watch Video Solution](#)

21. Write the following sets in the roster form.

(i) B is the set of all months in a year having 30 days.

(ii) P is the set of all prime numbers smaller than 10.

(iii) X is the set of colours of the rainbow.



 Watch Video Solution

22. A is the set of factors of 12. Which one of the following is not a member of A.

(A) 1 (B) 4 (C) 5 (D) 12



Watch Video Solution

23. $A=\{1,2,3,4\}$, $B=\{2,4\}$, $C=\{1,2,3,4,7\}$, $F=\{\}$.

Fill in the blanks with \subset or $\not\subset$

(i) $A \dots B$ (ii) $C \dots A$ (iii) $B \dots A$

(iv) $A \dots C$ (v) $B \dots C$ (vi) $\phi \dots B$



Watch Video Solution

24. State which of the following statements are true.

(i) $\{\} = \phi$

(ii) $\phi = 0$

(iii) $0 = \{0\}$



Watch Video Solution

25. Let $A = \{1, 3, 7, 8\}$ and $B = \{2, 4, 7, 9\}$. Find $A \cap B$



Watch Video Solution

26. If $A=\{6,9,11\}$, $B=\{\}$. Find $A \cup \phi$.



Watch Video Solution

27. $A=\{1,2,3,4,5,6,7,8,9,10\}$, $B=\{2,3,5,7\}$. Find $A \cap B$



Watch Video Solution

28. If $A=\{4,5,6\}$, $B=\{7,8\}$ then show that

$$A \cup B = B \cup A$$



[Watch Video Solution](#)

29. If $A=\{1,2,3,4,5\}$ and $B=\{4,5,6,7\}$, then find $A-B$ and $B-A$. Are they equal?



[Watch Video Solution](#)

30. If $V=\{a,e,l,o,u\}$ and $B=\{a,l,k,u\}$. Find $V-B$ and $B-V$.



[Watch Video Solution](#)

31. Which of the following are empty sets?

Justify your answer.

(i) Set of integer which lie between 2 and 3.

(ii) Set of natural numbers that are smaller than 1.

(iii) Set of odd numbers that leave remainder zero, when divided by 2.



Watch Video Solution

32. State which of the following sets are finite and which are infinite. Give reasons for your

answer.

$$(i) \quad A = \{x : x \in N \text{ and } x < 100\} \quad (ii)$$

$$B = \{x : x \in N \text{ and } x \leq 5\}$$

$$(iii) \quad C = \{1^2, 2^2, 3^2, \dots\} \quad (iv) \quad D = \{1, 2, 3, 4\}$$

$$(v) \quad \{x : x \text{ is a day of the week}\}$$



[Watch Video Solution](#)

33. Tick the set which is infinite

(A) The set of whole numbers < 10

(B) The set of prime numbers < 10

(C) The set of integers < 10

(D) The set of factors of 10



[Watch Video Solution](#)

Try This

1. Write some sets of your choice, involving algebraic and geometrical ideas.



[Watch Video Solution](#)

2. Match roster forms with the set builder form.

(i) $\{p,r,l,n,c,a,l\}$ (a) $\{x : x \text{ is a positive integer and}$

is a divisor of 18}

(ii) $\{0\}$ (b) $\{x : x \text{ is an integer and } x^2 - 9 = 0\}$

(iii) $\{1,2,3,6,9,18\}$ (c) $\{x : x \text{ is an integer and } x+1=1\}$

(iv) $\{3,-3\}$ (d) $\{x : x \text{ is a letter of the word PRINCIPAL}\}$



[Watch Video Solution](#)

3. $A = \{\text{set of quadrilaterals}\}$, $B = \{\text{square, rectangle, trapezium, rhombus}\}$. State whether $A \subset B$ or $B \subset A$. Justify your answer.



[Watch Video Solution](#)

4. If $A = \{a, b, c, d\}$. How many subsets does the set A have?

(A) 5 (B) 6 (C) 16 (D) 65



[Watch Video Solution](#)

5. List out some sets A and B and choose their elements such that A and B are disjoint.



[Watch Video Solution](#)

6. If $A=\{2,3,5\}$. Find $A \cup \phi$ and $\phi \cup A$ and compare.



[Watch Video Solution](#)

7. If $A=\{1,2,3,4\}$ and $B=\{1,2,3,4,5,6,7,8\}$, then find $A \cup B$ and $A \cap B$. What do you notice about the result?



[Watch Video Solution](#)

8. Let $A=\{1,2,3,4,5,6\}$ and $B=\{2,4,6,8,10\}$. Find the intersection of A and B.



[Watch Video Solution](#)

9. Which of the following sets are empty sets?
Justify your answer.

(i) $A = \{x : x^2 = 4 \text{ and } 3x = 9\}$

(ii) The set of all triangles in a plane having the sum of their three angles less than 180.



[Watch Video Solution](#)

