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Equal Set is the relation between two sets that tells us about the equality of two sets i.e., all the elements of both sets are the same and both sets have the same number of elements as well. As we know, a set is a well-defined collection of objects where no two objects can be the same, and sets can be empty, singleton, finite, or infinite based on the number of its elements. Other than that, there can be sets based on the relationships between two sets such as subsets, equivalent sets, equal sets, or it can set of subsets for any set, i.e., power sets, etc. This article explores one such relationship of sets known as Equal Set, including definition, examples, properties as well as Venn diagram. What are Equal Sets?Equal sets are those sets whose cardinality is the same and whose all elements are equal. In other words, two sets are regarded as equal sets when they have all the same elements and also the same number of elements. Equal Sets DefinitionIf all elements of two or more sets are equal and the number of elements is also equal, then the sets are said to be equal sets. Example: P = {a, b, c, d} and Q = {a, b, c, d} are equal sets since they both have the same elements and also the same number of elements. Equal Set SymbolEqual Set is represented by "=" sign between any two sets, where the equality holds. For example, {2, 3, 5} and {3, 2, 5} are equal sets and we can represent them using "=" symbol as follows: {2, 3, 5} = {3, 2, 5} Unlike this, unequal sets are represented by "≠" which means the equality between sets doesn't hold. For example, {2, 3, 5} ≠ {1, 2, 3} Example of Equal SetsLet P be the set of all integers greater than 0 and Q be the set of all natural numbers. Then, P = {1, 2, 3, 4,.....} and Q = {1, 2, 3, 4,....}. As we can see, all elements of P are the same as all the elements of Q, P and Q are equal sets. Some other examples include: A = { 1, 2, 3, 4, 5} and B = {2, 3, 1, 5, 4}.Set of alphabets in words "listen" and "silent".Set of fractions {1/2, 2/4, 3/6} and {6/12, 4/8, 2/4}.Equal and Unequal SetsThe key differences between both equal and unequal sets are as follows: AspectEqual SetsUnequal SetsDefinitionTwo sets have the same elements.Two sets have different elements.NotationA = BA ≠ BCardinalityEqualMay or Maynot be EqualExamples{1, 2, 3} = {3, 2, 1}{1, 2, 3} ≠ {4, 5, 6}SubsetsEvery subset of A is also a subset of B, and vice versa.Subsets may differ.IntersectionA ∩ B = A (or B)A ∩ B has common elements of both A and B.UnionA ∪ B = A (or B)A ∪ B combines elements of both A and B.ComplementComplement of A is same as complement of B.Complements of unequal sets differs.Equal and Equivalent SetsThe key differences between equivalent and equal sets are given in the following table: Equal Sets Equivalent Sets Two or more sets are equal when all their elements are equal. Two or more elements are equivalent when they have the same number of elements. Equal sets are denoted by the symbol '='. Equivalent sets are denoted by the symbol '~' or '≡'. Equal sets is a broader term and encompasses equivalent sets, i.e., all equal sets are also equivalent sets. Two or more equivalent sets may or may not be equal. All elements of equal sets need to be the same. The elements of two equivalent sets need not be the same. Note: Equal Sets are always Equivalent Sets but vice versa is not true. Venn Diagram of Equal SetsThe following Venn diagram shows set A = {2, 3, 5} = set B. Read more about: Venn Diagram Properties of Equal SetsThere are various properties of equal sets, some of which are listed as follows: The intersection of two equal sets is equal to both sets, i.e., if A = B then, A ∩ B = A = B.Two equal sets are always subsets of each other, i.e., if A ⊂ B and B ⊂ A, then A = B.For two sets to be equal, the order of their elements does not matter, i.e., {9, 10, 11} = {11, 10, 9}.The cardinality of equal sets and their power set are the same.Equal sets always have the same number of elements.The elements of two equal sets are equal.Related Article, Practise Problems of Equal SetsP1. Determine if A = {a, b, c} and {b, c, a} are equal set or not. P2. Check if set A = {2, 4, 6, 8} and set B = (x: x is positive even integer less then 10) P3. Determine if the sets P = (x: x is roots of equation, x2 + 5x + 6 = 0) and Q = {2, 3} are equal set or not. Solved Example of Equal SetsProblem 1. Are the sets P = {r: r is prime such that 40 < r < 50} and Q = {42, 44, 45, 46, 48} equal? Solution: Set P = {r: r is prime such that 40 < r < 50} and set Q = {42, 44, 45, 46, 48, 49}. Thus, P = set of prime numbers between 40 and 50. ⇒ P = {41, 43, 47} ≠ {42, 44, 45, 46, 48, 49} = Q Thus, sets P and Q are unequal. Problem 2. Identify the equal sets from the following: P = {p ∈ R: p2– 2p + 1 = 0}Q = (1, 2, 3}R = {p ∈ R : p3 – 6p2 + 11p – 6 = 0}. Solution: Two sets are regarded as equal sets when they have all the same elements and also the same number of elements. Let's list out the elements of sets P and R before comparing them with set Q. P ={p ∈ R: p2 – 2p + 1 = 0} ⇒ p2 – 2p + 1 = 0 ⇒ (p - 1)2 = 0 ∴ p = 1. ⇒ P = {1} Set Q can also be written as {1, 2, 3} since we do not repeat elements in a set. Similarly, upon solving p3 – 6p2 + 11p – 6 = 0, set R = {1, 2, 3}. Thus, sets Q and R are equal. Problem 3. Determine the groups of equivalent and equal sets from the following: A = {0, $}, B = {10, 21, 39, 94}, C = {44, 89, 128}, D = {39, 10, 21, 94}, E = {1, 0}, F = {89, 44, 128}, G = {15, 5, @, 11}, H = {a, c}.Solution: Equivalent Sets: Having 2 elements each: A, E and H Having 3 elements each: C and F Having 4 elements each: B, D and G Equal Sets: B and D = {10, 21, 39, 94} C and F = {44, 89, 128} Problem 4. Determine whether the sets of alphabets in words TITLE and LITTLE are equal. Solution: Let A be the set of alphabets in the word TITLE. A = {L, I, T, E} Let B be the set of alphabets in the word LITTLE. B = {L, I, T, E} Thus, A and B are equal sets. Here you will learn definition of equal sets and equivalent sets with examples. Let's begin – Equal Sets and Equivalent Sets (i) Equal Sets : Two finite sets A and B are equivalent if their cardinal numbers are same i.e. n(A) = n(B). Where cardinal number means numbers of elements in a set. (ii) Equivalent Sets : Two sets A and B are said to be equal if every element of A is a member of B, and every element of B is a member of A. If sets A and B are equal, we write A = B and A \(e\) B when A and B are not equal. If A = {1, 2, 5, 6} and B = {5, 6, 2, 1}. Then A = B, because each element of A is an element of B and vice-versa. Note that the elements of a set may be listed in any order. For Example : Let A = {1, 2, 3} and B = {a, b, c} Then set A and set B are equivalent sets because n(A) = n(B) = 3. But not equal sets. Equal sets are sets in set theory in which the number of elements is the same and all elements are equal. It is a concept of set equality. Before getting into the detail of the concept of equal sets, let us recall the meaning of sets. A set is a well-defined collection of objects such as letters, numbers, people, shapes, etc. They are generally denoted by a capital letter and braces '{}'. We study different types of sets in set theory. In this article, we will explore the concept of equal sets, its definition, and their properties. We will also understand the difference between equal sets and equivalent sets with the help of examples for a better understanding. What are Equal Sets? Equal sets are defined as the sets that have the same cardinality and all equal elements. In other words, two or more sets are said to be equal sets if they have the same elements and the same number of elements. For example set A = {1, 2, 3, 4, 5} and B = {1, 2, 3, 4, 5}. Then sets A and B are said to be equal sets as their elements are the same and they have the same cardinality. Now, two sets are said to be unequal sets if all the elements are not the same in two sets, and sets that have the same number of elements are called equivalent sets. For example, if A = {1, 2, 3, 4, 5}, C = {2, 4, 6, 7, 9}, and D = {2, 5, 6} . Sets A and C have the same number of elements but all the elements are not equal. Therefore, A and C are equivalent sets. Now, sets A and D do not have the same cardinality and the elements are also not equal. Therefore, sets A and D are unequal sets. The equal and equivalent sets can be understood from the number of elements and the similarity of elements of the two sets. Equal Sets Definition If all elements of two or more sets are equal and the number of elements is also equal, then the sets are said to be equal sets. The notation used to denote equal sets is '=', i.e., if sets A and B are equal, then it is written A = B. We know that the order of elements in sets does not matter. So, if A = {a, b, c, d} and B = {b, a, d, c}, then A and B are equal sets because they have the same elements, and order of the elements does not impact the equality of the sets. Equal Sets Representation Using Venn Diagram Let us now represent equal sets on a Venn diagram. The Venn diagram given below shows two equal sets A and B with the same number of elements and equal elements, i.e., A = {11, 17, 38} = B. Properties of Equal Sets Now, we have understood the meaning of equal sets. Next, we will study some of its important properties that help in understanding and identifying them: The order of the elements does not impact the equality of the two sets. Equal sets have the same cardinality, that is, they have the same number of elements. If two sets are subsets of each other, then the set notation used is A ⊆ B and B ⊆ A, and the two sets are equal. A = B. Equal sets must have all equal elements. The power set of equal sets also has the same cardinal number. Equal and equivalent sets have the same property of equal number of elements. All equal sets are equivalent sets but the converse is not true. Difference Between Equal And Equivalent Sets The table given below highlights the similarities and differences between equal and equivalent sets: Equal Sets Equivalent Sets If all elements are equal in two or more sets, then they are equal. If the number of elements is the same in two or more sets, then are equivalent. Equal sets have the same cardinality Equivalent sets have the same cardinality. They have the same number of elements. They have the same number of elements. The symbol used to denote equal sets is '=' The symbol used to denote equivalent sets is ~ or ≡ All equal sets are equivalent sets. Equivalent sets may or may not be equal. Elements should be the same. Elements need not be the same. Important Properties of Equal Sets Equal sets are equivalent but equivalent sets need not be equal. Sets with the same elements are equal. If two sets are subsets of each other, then they are equal. Related Topics Sets Formulas Set Operations Disjoint Sets A union B A intersection B Example 1: Prove that A = {x: x is prime such that 1 < x < 10} and B = {2, 3, 5, 7} are equal sets. Solution: A = {x: x is prime such that 1 < x < 10} = {2, 3, 5, 7} Now, the number of elements in A and B are the same, i.e., 4 and all the elements are also equal. Therefore, A = B Answer: A = {x: x is prime such that 1 < x < 10} = {2, 3, 5, 7} = B Example 2: Check if the sets A = {a, e, i, o, u} and B = {e, i, a, o, u} are equal sets or unequal sets. Solution: We know that the order of the elements does not impact the equality of the two sets. Therefore, set B can be written as B = {a, e, i, o, u} after rearranging the elements of B. Hence, A = {a, e, i, o, u} = B Answer: Sets A and B are equal sets. View Answer > go to slidego to slide Great learning in high school using simple cues Indulging in rote learning, you are likely to forget concepts. With Cuemath, you will learn visually and be surprised by the outcomes. Book a Free Trial Class FAQs on Equal Sets Equal sets are sets in math in which the number of elements is the same and all elements are equal. Equal sets are defined as the sets that have the same cardinality and all equal elements. What is the Difference Between Equal And Equivalent Sets? The difference between equal and equivalent sets is only in the difference of the elements. If all elements are equal in two or more sets, then they are equal but in equivalent sets, the elements need not be the same but the number of elements should be the same. How to Identify Equal Sets? To identify equal sets, all elements of the sets should be equal and the number of elements should be the same. How to Prove that Two Sets are Equal? To prove two sets are equal, we can prove them to be subsets of each other. Another way to show equal sets, we can check the equality of the elements and their cardinality. What are Equal and Unequal Sets? Two or more sets are said to be equal sets if they have the same elements and the same number of elements. If any of these conditions is not satisfied, then the sets are unequal, that is, if the sets are not equal, then. they are said to be unequal sets. Are Equivalent Sets Equal Sets? All equivalent sets are not equal sets. Equivalent sets are equal only if all the elements of the sets are equal. What is the Set Notation Used for Equal Sets? The symbol used to represent equal sets is '='. The set notation used to represent set A and set B, which are equal is A = B. In Mathematics, a set is defined as the collection of well-defined distinct objects. The different objects that create a set are called the elements of the set. Generally, the elements of the sets can be written in any order but it should not be repeated. The set is usually represented by the capital letter. In basic set theory, two sets can either be equivalent, equal or unequal to each other. In this article, we are going to discuss what is meant by equal and equivalent set with examples and also the difference between them. Also, read: Sets Finite and Infinite sets Subset and Superset Types of Sets What are Equal Sets? Two sets A and B can be equal only if each element of set A is also the element of the set B. Also if two sets are the subsets of each other, they are said to be equal. This is represented by: A = B A ⊂ B and B ⊂ A ⟺ A = B If the condition discussed above is not met, then the sets are said to be unequal. This is represented by: A ≠ B Let us now go ahead and find when the given two sets are equivalent. What are Equivalent Sets? To be equivalent, the sets should have the same cardinality. This means that there should be one to one correspondence between elements of both the sets. Here, one to one correspondence means that for each element in the set A, there exists an element in the set B till the sets get exhausted. Definition 1: If two sets A and B have the same cardinality if there exists an objective function from set A to B. Definition 2: Two sets A and B are said to be equivalent if they have the same cardinality i.e. n(A) = n(B). In general, we can say, two sets are equivalent to each other if the number of elements in both the sets is equal. And it is not necessary that they have same elements, or they are a subset of each other. Equal And Equivalent Sets Examples Equal Set Example If P = {1, 3, 9, 5, −7} and Q = {5, −7, 3, 1, 9,}, then P = Q. It is also noted that no matter how many times an element is repeated in the set, it is only counted once. Also, the order doesn't matter for the elements in a set. So, to rephrase in terms of cardinal number, we can say that: If A = B, then n(A) = n(B) and for any x ∈ A, x ∈ B too. Equivalent Set Example If P = {1,−7,200011000,55} and Q = {1,2,3,4}, then P is equivalent to Q. If C = {x : x is positive integer} and D = {d : d is a natural number}, then C is equivalent to D. Important points: All the null sets are equivalent to each other. If A and B are two sets such that A = B, then A is equivalent to B. This means that two equal sets will always be equivalent but the converse of the same may or may not be true. Not all infinite sets are equivalent to each other. For e.g. the set of all real numbers and the set of integers. Video Lesson on What are Sets To know more about the sets and other mathematical concepts, visit us at BYJU'S and download BYJU'S -The Learning App to learn with ease by watching more interactive videos. Put your understanding of this concept to test by answering a few MCQs. Click 'Start Quiz' to begin! Select the correct answer and click on the "Finish" buttonCheck your score and answers at the end of the quiz Visit BYJU'S for all Maths related queries and study materials 0 out of 0 arewrong 0 out of 0 are correct 0 out of 0 are Unattempted View Quiz Answers and Analysis Even though equal and equivalent sets sound like there isn't much difference between them. These two are similar concepts, yes, but there is a minor difference between them that sets them both apart. But before we divide into equal and equivalent sets, let us understand what cardinality is. Cardinality is the number of elements inside a set. Now this is important because this will help us understand the difference between equal and equivalent sets. Equal and equivalent sets are terms used to denote some kind of relationship between two sets. You may think of this as some sort of comparison. Like how you would compare apples to oranges but if there is no standard by which we can compare them, then it would be very difficult to establish anything. If we were to compare them by number, then we could say that there are more apples than oranges or vice versa. Or we could say that there are equal numbers of apples and oranges. The same way, if we were to compare two sets, we could use cardinality as a standard for comparison. Let us see how it is done.Define Equal SetsTo understand Equal Set meaning, Equal Set is defined as two sets having the same elements. Two sets A and B can be equal only on the condition that each element of set A is also the element of set B. Also, if two sets happen to be the subsets of each other, then they are stated to be equal sets.Continuing our above example, if we were to compare one basket of oranges with another basket of oranges, and if the number of oranges is equal in both the baskets, then this is said to be an example for equal sets. Equal SetsAn equal set can be represented by:P = QP ⊂ Q and Q ⊂ P ⟺ P equals to QIt is to be noted that if the condition discussed above is not met, then the set is stated to be unequal.To elaborate, if the two baskets contained an unequal number of oranges or if one basket contained apples and the other contained oranges of the same number, then these cases are said to be examples for unequal sets.Unequal sets are represented byP ≠ QDefine Equivalent SetsEquivalent sets meaning in Mathematics holds two definitions.Equivalent Sets Definition 1 - Let's say that two sets A and B have the same cardinality, then, there exists an objective function from set A to B.Equivalent Sets Definition 2 - Let's say that two sets A and B are stated to be equivalent only if they have the same cardinality, that is, n(A) = n(B).Thus, to remain or be equivalent, the sets should possess the same cardinality. In other words, if there is a basket of apples and a basket of oranges, then if they are of the same number, we can call these as an example for equivalent sets.This condition means that there should be one to one correspondence between the elements belonging to both the sets. In this context, the one to one condition implies that for each element on the set A, there exists an element in the set B, till both the set A and set B gets exhausted.Therefore, in general, it can be stated that the two sets remain equivalent to each other if only the number of elements in both the sets remain equal. The sets don't need to hold the same elements, or they stay to be a subset of each other.Equal And Equivalent Sets ExamplesEqual Set ExampleIf we consider numbers to denote the elements of two sets then we can understand equal and equivalent sets in the following manner.Let's understand equal sets with an example,If M= {1, 3, 9, 5, −7} and N = {5, −7, 3, 1, 9,}, then it can be stated that M = N. It is to be noted that no matter how many times an element is repeated in a particular set, the element is counted only once. Also, it is to be pointed out that the order does not matter for the elements for a specific set. Therefore, in terms of cardinal number, equal sets can be stated that: If P = Q, then n(P) = n(Q) and for any x ∈ P, x ∈ Q too.Equivalent Set ExampleIf S = {x: x, where x is stated to be a positive integer} and T = {d : d, where x is said to be a natural number}, then S is stated to be equivalent to T.Thus, it can be stated that an equivalent set is simply a set with an equal number of elements. However, the sets don't need to have the same elements but must comprise the same number of elements. Let's Understand Equivalent Sets With ExamplesIf A = {1,−7,200011000,55} and B = {1,2,3,4}, then A is equivalent to B.If Set G: {Sweater, Mittens, Scarf, Jacket} and Set H: {Apples, Bananas, Peaches, Grapes}, it can be noted that both Set G and Set H comprise word elements in different categories and have the same number of elements i.e. four. We are now clear on what equal and equivalent sets are. Now let us expand our knowledge to accommodate a few fascinating facts about the relation between equal and equivalent sets. They are mentioned as important pointers below.Important Points to Remember on Equivalent SetsAll the null sets are said to be equivalent to each other.Not all the infinite sets remain equivalent to each other. For example, the equivalent set of all the real numbers and the equivalent set of the integers. If P and Q are stated to be two sets such that P is equal to Q, that is, (P = Q). This example means that two equal sets will always remain to be equivalent, but the converse of the equivalent set may or may not remain true.An equal set can be an equivalent set, but it is not necessary for an equivalent set to be an equal set. Home>Set Equality – Explanation & Examples Download the Testbook APP & Get Pass Pro Max FREE for 7 Days10,000+ Study NotesRealtime Doubt Support71000+ Mock TestsRankers Test Series+ more benefitsDownload App Now Related Pages Describing Sets Set Notation Venn Diagrams And Subsets More Lessons on Sets Equal Sets Two sets, P and Q, are equal sets if they have exactly the same members. Each element of P are in Q and each element of Q are in P. The order of elements in a set is not important. Example: List the elements of the following sets and show that P ≠ Q and Q = R P = {x : x is a positive integer and 5x ≤ 15} Q = {x : x is a positive integer and x 2 < 25} R = {x : x is a positive integer and x ≤ 4} Solution: 5x ≤ 15 ⇒ x ≤ 3 So, P = {1, 2, 3} x 2 < 25 ⇒ x < 5 So, Q = {1, 2, 3, 4} R = {1, 2, 3, 4} Therefore, P ≠ Q and Q = R. Learn about equal sets Equal sets, equivalent sets, one-to-one correspondence and cardinality Two sets are equivalent if they have the same number of elements. The elements do not need to be the same. Equivalent sets have one-to-one correspondence to each other. The cardinality of a set is the number of elements in the set. What are Equivalent Sets? Show Video Lesson Try out our new and fun Fraction Concoction Game. Add and subtract fractions to make exciting fraction concoctions following a recipe. There are four levels of difficulty: Easy, medium, hard and insane. Practice the basics of fraction addition and subtraction or challenge yourself with the insane level. We welcome your feedback, comments and questions about this site or page. Please submit your feedback or enquiries via our Feedback page. In set theory, two or more sets can be equal, unequal, or equivalent. Understanding the differences between equal and equivalent sets is essential for solving problems in algebra, statistics, and data analysis involving set theory. Two or more sets are considered equal if they contain exactly the same elements in any order. Thus, if two sets are equal, say A and B, every element of set A is also present in set B and vice-versa. Two equal sets, A and B, are represented by A = B A = {c, d, x, y} and B = {d, x, y, c} are equal sets since they contain the same number of elements and the same elements arranged differently. A = B ⇒ {c, d, x, y} = {d, x, y, c} Similarly, V = {2, 4, 6, 8} and W = {6, 2, 8, 4} are also equal sets. In contrast, sets are unequal if their elements are not the same. If P = {1, 2, 4, 6} and Q = {8, 9, 10, 11, 12} are thus unequal sets, which is represented by the symbol P ≠ Q All elements are equal They are equal regardless of the order of the elements They have the same cardinality The power set of equal sets has the same cardinality The set notations used when two sets are equal and are subsets of each other are: A ⊆ B and B ⊆ A ⟺ A = B If we represent the equal sets A = {c, d, x, y} and B = {d, x, y, c} in a Venn diagram, we get Two or more sets are said to be equivalent if they have the same number of elements, regardless of what the elements are. Thus, two equivalent sets have the same cardinality, which means the elements of both sets correspond to each other on a one-to-one basis. If A and C are two sets such that n(A) = n(C), they are equivalent and are represented as A ~ C or A ≡ C A = {c, d, x, y} and B = {d, x, y, c} have the same elements (cardinality 4) written in different order. Thus, A and B are equivalent sets. Similarly, A = {c, d, x, y} and C = {w, y, u, v} are also equivalent sets despite them having different elements, as they have the same cardinality. In general, two equivalent sets need not have the same elements or be subsets of each other. They have the same cardinality The elements may or may not be arranged in a specific order The power set of equivalent sets has the same cardinality All equivalent sets are not equal sets, but the converse is true If we represent the equivalent sets A = {c, d, x, y} and C = {w, y, u, v} in a Venn diagram, we get FactorsEqual SetsEquivalent SetsDefinitionTwo or more sets are equal if they contain exactly the same elements in any orderTwo or more sets are equivalent if they have the same number of elements, regardless of the elements.CardinalityThey have the same cardinalityThey have the same cardinalitySymbol'=' is used to represent equal sets'~' or '≡' is used to represent equivalent sets ElementsAll the elements should be the sameThe elements need not be the sameRelationAll equal sets are equivalent Equivalent sets may or may not be equalExampleA = {1, 2, 3, 4} and B = {3, 1, 2, 4} A = {1, 2, 3, 4} and C = {a, b, c, d} Verify if the A = {3, 5, 8, 13, 21} and B = {3, 13, 21, 8, 5} are equal or unequal sets. Are they equivalent sets?Solution:Given A = {3, 5, 8, 13, 21} and B = {3, 13, 21, 8, 5} Here, the two given sets have the same elements: 3, 5, 8, 13, and 21Also, they have the same cardinality = 5Thus, A and B are equal sets, A = B.Since the sets A and B have the same cardinality, they are also equivalent sets. Prove that A = {x | 7 < x < 14 and x is a prime number} and B = {20, 21} are equivalent sets.Solution:Given set A = {x | 7 < x < 14 and x is a prime number} and set B = {20, 21}⇒ A = {11, 13} and B = {20, 21}Since the two sets have the same cardinality = 2Thus, A and B are equivalent sets, A ≡ B. Last modified on July 12th, 2024 In order to continue enjoying our site, we ask that you confirm your identity as a human. Thank you very much for your cooperation. Related Pages Describing Sets Set Notation Venn Diagrams And Subsets More Lessons on Sets Equal Sets Two sets, P and Q, are equal sets if they have exactly the same members. Each element of P are in Q and each element of Q are in P. The order of elements in a set is not important. Example: List the elements of the following sets and show that P ≠ Q and Q = R P = {x : x is a positive integer and 5x ≤ 15} Q = {x : x is a positive integer and x 2 < 25} R = {x : x is a positive integer and x ≤ 4} Solution: 5x ≤ 15 ⇒ x ≤ 3 So, P = {1, 2, 3} x 2 < 25 ⇒ x < 5 So, Q = {1, 2, 3, 4} R = {1, 2, 3, 4} Therefore, P ≠ Q and Q = R. Learn about equal sets Equal sets, equivalent sets, one-to-one correspondence and cardinality Two sets are equivalent if they have the same number of elements. The elements do not need to be the same. Equivalent sets have one-to-one correspondence to each other. The cardinality of a set is the number of elements in the set. What are Equivalent Sets? Show Video Lesson Try out our new and fun Fraction Concoction Game. Add and subtract fractions to make exciting fraction concoctions following a recipe. 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