Warm - up

1) What is the symbol that represents "an element of"?

$\in$ $x|x$

2) The cardinal # represents the total number of elements in a set?

3) What is the cardinal number of the set Z={1,2,3,6,7,9}

$n(Z)=6$

$2 \in Z$

Jan 25-7:44 AM

Section 2-2

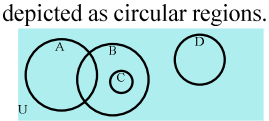
Venn Diagrams and Subsets

Aug 29-7:29 AM

Venn Diagrams

In set theory, the universe of discourse is called the **Universal set**, typically designated with the letter ***U***.

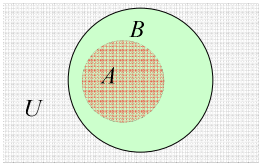
Venn Diagrams were developed by the logician John Venn (1834 – 1923). In these diagrams, the universal set is represented by a Rectangle(**U**) and other sets of interest(A, B, C, D,...) within the universal set are depicted as circular regions.



Aug 29-7:29 AM

Subsets of a Set

Set A is a subset of set B if every element of A is also an element of B. In symbols this is written $A \subseteq B$. Think about $\leq$, less than or equal to.



Aug 29-7:29 AM

Example: Subsets

Fill in the blank with $\subseteq$ or $\nsubseteq$ to make a true statement.

a) {a, b, c} ___ { a, c, d, e, f}
b) {1, 3, 4} ___ {1, 2, 3, 4}

Aug 29-7:29 AM

a) Create a set O and display it as a list of elements.
b) Describe the list using set notation.
c) Name at least 3 subsets of your set.

Jan 25-8:06 AM

Proper Subset of a Set

Set A is a **proper subset** of set B if $A \subseteq B$ and $A \neq B$.
In symbols, this is written $A \subset B$.

For example, consider a set A={1,2,3,4,5}.
Then {1,2,4} and {1} are proper subsets, while {1,2,6} and {1,2,3,4,5} are not.

Think of $\leq$ vs. $<$.

Aug 29-7:29 AM

Are any of the subsets you created, proper subsets?

Jan 25-8:14 AM

Example: Proper Subsets

Decide whether $\subseteq$, $\subset$, or both could be placed in each blank to make a true statement.

a) {a, b, c} ___ { a ,b, c, d}
b) {1, 2, 3, 4} ___ {1, 2, 3, 4}

Aug 29-7:29 AM

Number of Subsets Formula

The number of subsets of a set with n elements is 2^n.

The number of proper subsets of a set with n elements is $2^n - 1$.

Aug 29-7:29 AM

Example: Number of Subsets

Find the number of subsets and the number of proper subsets of the set {m, a, t, h, y}.

Solution

Since there are 5 elements, the number of subsets is $2^5 = 32$.

The number of proper subsets is $32 - 1 = 31$.

Aug 29-7:29 AM

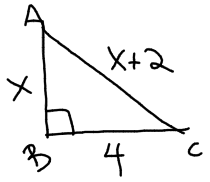
p. 63

7-21 odd, 23-30 all, 41-43 all, 47, 49, 52

Jan 28-8:15 AM

Warm Ups 1/28/2014

① Find all angles and side



Jan 28-8:36 AM