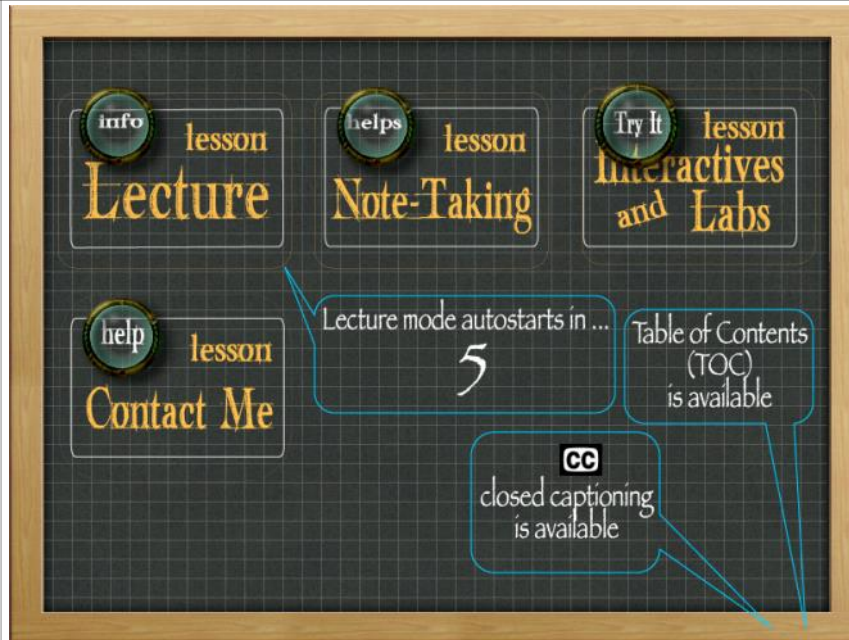


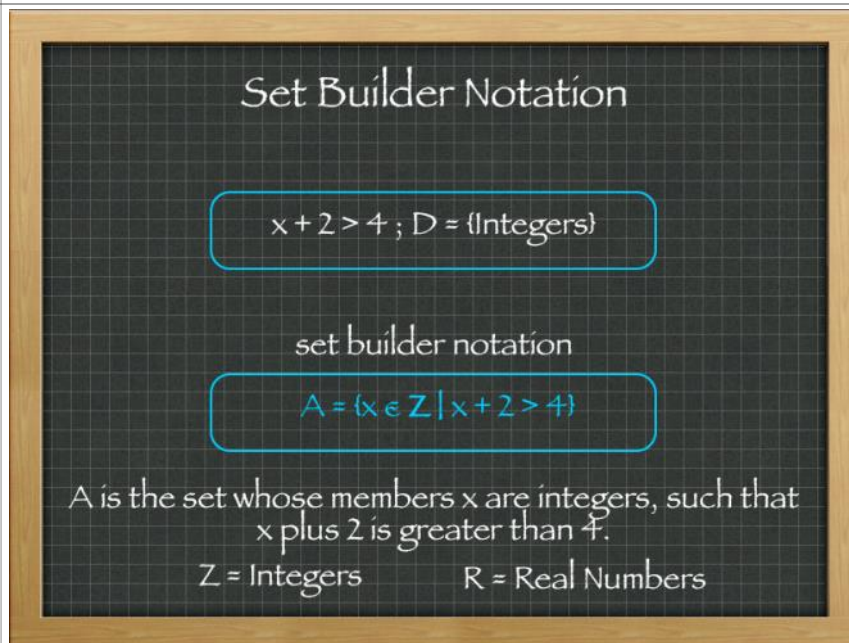
Set Builder Notation

Thursday, January 19, 2012
5:45 PM

Slides



Notes



Set builder notation is an alternate way to write out equations with a specified domain. It is used heavily in some textbooks and not at all in others. It is a good idea to be exposed to both ways. That way if you hit a text in college that uses the set builder notation it won't be something that you will hit for the first time.

Here is how you would read this in set builder notation: A is the set whose members x are integers, such that x plus 2 is greater than 4.

Yes, "Z" really was chosen to stand for integers instead of the more logical letter "I". My guess is that is due to many fonts having letter I's that are just straight lines and it would get confusing with it being so close to the line that means "such that".

There are some possible alternate forms of this one. The beginning with "A =" isn't required. You can start the name from the "Set whose members ..." part.

If the domain is real numbers, then you would use a bold R instead of the Z.

Set Builder Notation

$$\left\{ \begin{array}{l} y > x + 2 \\ y < -x \end{array} \right. \quad D = \{\text{Reals}\}$$

set builder notation

$$\{(x, y) \in \mathbb{R} \mid y > x + 2 \text{ and } y < -x\}$$

The set whose members are ordered pairs of x and y , where x and y are real numbers such that $y > x + 2$ and $y < -x$.

Here is what set builder notation would look like if you have a simultaneous equation.

$$A = \{x \in \mathbb{Z} \mid x + 2 > 4\}$$

A is the set

whose members

x are integers

such that

x plus 2 is greater than 4

Undo

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