Lesson 23: True and False Number Sentences

Classwork

Opening Exercise

Determine what each symbol stands for and provide an example.

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| **Symbol** | **What the Symbol Stands For** | **Example** |
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**Example 1**

For each equation or inequality your teacher displays, write the equation or inequality, and then substitute for every . Determine if the equation or inequality results in a true number sentence or a false number sentence.

Exercises

Substitute the indicated value into the variable, and state (in a complete sentence) whether the resulting number sentence is true or false. If true, find a value that would result in a false number sentence. If false, find a value that would result in a true number sentence.

1. . Substitute for .
2. .Substitutefor *.*

1. . Substitute for.

1. .Substitutefor*.*

1. .Substitutefor*.*
2. . Substitutefor.

1. . Substitutefor.

1. . Substitutefor .

1. . Substitute for.

1. . Substitutefor .

Lesson Summary

**Number Sentence:**  A *number sentence* is a statement of equality (or inequality) between two numerical expressions.

**Truth Values of a Number Sentence:** A number sentence that is an equation is said to be *true* if both numerical expressions evaluate to the same number; it is said to be *false* otherwise.  True and false are called *truth values*.

Number sentences that are inequalities also have truth values. For example, , , and are all true number sentences, while the sentence is false.

Problem Set

Substitute the value into the variable, and state (in a complete sentence) whether the resulting number sentence is true or false. If true, find a value that would result in a false number sentence. If false, find a value that would result in a true number sentence.

1. . Substitutefor .

1. . Substitutefor.
2. . Substitute for .
3. . Substitute for .
4. . Substitute for .

Create a number sentence using the given variable and symbol. The number sentence you write must be true for the given value of the variable.

1. Variable: Symbol: The sentence is true when is substituted for .
2. Variable: Symbol: The sentence is true when is substituted for.
3. Variable: Symbol: The sentence is true when is substituted for.
4. Variable: Symbol: The sentence is true when is substituted for.