Date:

Unit 2 - Lesson 5



Algebra is an efficient way to express mathematical ideas. In order to create an algebraic model for a situation, we need to be able to translate descriptions into algebraic expressions and equations.

*Practice translating.*

|  |  |
| --- | --- |
| **Symbol** | **Common Phrases** |
| + |  |
| − |  |
| × |  |
| ÷ |  |
| = |  |

1. **Write the following words in the appropriate row in the table above:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| a half of | more than | greater than | three times as big | quotient | plus | less than |
| add | minus | decreased by | increased by | subtract | times | exceeds |
| take away | divided by | multiply by | faster than | difference | and | a tenth of |
| equal | add up to | higher than | slower than | product | total |  |

1. **Translate each English expression into an algebraic expression.**

|  |  |  |
| --- | --- | --- |
| **An English expression** | **Define a variable** | **An algebraic expression**  |
| A number is decreased by 4 | Let $n$ represent a number | $$n-4$$ |
| 210 is decreased by a number | Let $n$ represent a number | $$210-n$$ |
| The height of a tree is 16 times its diameter |  |  |
| A length of a rectangle is increased by 36 |  |  |
| Andy’s weight is 5 kg less than twice his brothers. |  |  |
| The second of two numbers is 1 less than 3 times the smaller. |  |  |
| A membership to the gym cost $15 and $6 per visit |  |  |
| The chair costs 4 times as much as the lamp, and the table costs $23 less than the chair. |  |  |
| Three consecutive numbers |  |  |
| Two consecutive odd numbers  |  |  |

1. Read each problem slowly and carefully. **Read the problem** at least **three** **times** before trying to solve it. Sometimes words can be ambiguous. It is imperative to **know exactly what the problem is asking**. If you misread the problem or hurry through it, you have NO chance of solving it correctly.

How to succeed in solving problems algebraically

1. If appropriate, **draw a sketch or diagram** of the problem to be solved. **Pictures are a great help in organizing and sorting out your thoughts.**
2. **Define a variable** to be used and carefully label your picture or diagram with the variable and algebraic expressions or translate language into algebra. This step is very important because it leads directly or indirectly to the creation of mathematical equations.

Always try to **let the variable represent the smallest quantity.**

**Example 1**

The length of a rectangular pool is 28.5 m more than its width. The perimeter of the pool is 143 m. What are the dimensions of the pool?

**Example 2**

A hamburger and fries cost $4.20. The hamburger costs 40 cents more than the fries. How much does the hamburger cost?