

Algebra course work



**ASSIGN
BUSTER**

Part A Difference between equation and expression

Expression

Equation

1. Do not contain equal signs
2. Formed by variables, mathematical operation signs, constants,
3. An expression can only be simplified
4. Variables in expressions do not represent specific constant values

An example of an expression

$2n+1$ or $3t+2$

1. Contains an equal sign
2. Formed by letting the expression to represent a given number or being equivalent to another expression
3. An equation can be solved for a solution
4. For equations to be true, variables in equations represent certain constant values

An example of an equation

$2n + 1 = 3t + 2$

Variables in an expression cannot be solved. This is because the exact number represented by the expression is undefined. For example: the perimeter of a rectangle is given by $2L+2w$, however, the variables L and w can represent any number between 0 and infinity.

Variables in equations can be solved. A number that substitutes the variable in an equation and makes the equation true, it is the solution i. e. the number represented by the variable. For example:

If $n + 5 = 7$, then letting $n = 2$, we have $2 + 5 = 7$, thus, 2 is a solution and the number represented by the variable n .

1. Problem: In a certain class, every pupil had two pens, one of the pupils bought an additional two pens.

i. Write an expression to show the total number of pens all the pupils had?

ii. If the total number of pens were 64, write an equation in which the number of pupils can be found?

Working

i. The first case is an expression because it involves representing an unknown number

Letting the number of pupils to be represented by n ,

The total number of pens is represented by the equation: $2n + 2$

ii. This part demands for a solution, but, solutions can only be obtained in an equation

The equation to find the total number of pupils would be, $2n + 2 = 64$

Part B Order of operation

These are algebraic rules for working out expressions and equations correctly. Firstly, perform operations enclosed in brackets first, if there are

inner brackets beginning with them. Secondly, exponential expressions should be solved. Thirdly, multiplications and divisions shall be evaluated from the left to right in order. Lastly, subtraction and addition operation should be done from the left to the right subsequently (Bittinger & Beecher, 2007).

It is essential to follow the order of operations because they are consistent and ensure algebraic principles are not violated. For example: working from the left side may not obey distributive, associative and commutative laws.

Simplify the following expressions

1. $4(2+1) \div (8-4) + 10-4n$

2. $+) -$

3. $\{ [8 \div 24] * + 2 \}$

4. 3

Reference

Biting, M. L. & Beecher, J. A. (2007). Introduction and intermediate algebra (3rd ed).

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