

EaD Comprehensive Lesson Plans

Strand:	Algebra	Sub-Strand:	Algebraic Expressions
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or



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<https://www.TeachersAvenue.net>

<https://TrendingGhana.net>

<https://www.mcgregorinriis.com>

BASIC 7

WEEKLY LESSON PLAN – WEEK 4

Content Standard:	B7.2.2.1 Simplify algebraic expressions involving the four basic operations and substituting values to evaluate algebraic expressions.				
Indicator (s)	B7.2.2.1.1 Create simple algebraic expressions using simple logic to translate a set of instructions into an algebraic expression. B7.2.2.1.2 Perform addition and subtraction of algebraic expressions with rational coefficients. B7.2.2.1.3 Perform multiplication and division of algebraic expressions with rational coefficients.		Performance Indicator: Learners can simplify algebraic expressions.		
Week Ending	02-02-2024				
Class	B.S.7	Class Size:		Duration:	
Subject	Mathematics				
Reference	Mathematics Curriculum, Teachers Resource Pack, Learners Resource Pack, Textbook.				
Teaching / Learning Resources	Charts, Poster, Pictures.		Core Competencies:	<ul style="list-style-type: none">Analyze and make distinct judgment about viewpoints expressed in an argumentAbility to effectively define goals towards solving a problem	
DAYS	PHASE 1 : STARTER	PHASE 2: MAIN			PHASE 3: REFLECTION
MONDAY	Demonstrate on how to form algebraic expressions for given mathematical statements.	<div>1. Assist Learners to form algebraic expressions for real life situations.</div> <div>2. Give Learners examples of real life situations and ask them to form algebraic expressions with the situations.</div> <div>Algebraic expressions are the idea of expressing numbers using letters or alphabets without specifying their actual values. The basics of algebra taught us how to express an unknown value using letters such as x, y, z, etc. These letters are called here as variables. An algebraic expression can be a combination of both variables and constants. Any value that is placed before and multiplied by a variable is a coefficient.</div> <div>Common examples & applications of algebra use in daily life</div> <ul style="list-style-type: none">Catch the ball game played by 4-5-year-old kids.Making a schedule of activities.Preparing the food or doubling or halving the recipe.			Through questions and answers, conclude the lesson.

		<ul style="list-style-type: none"> • A kid developing spatial intelligence. • Finding the tax liability. • Astrological calculations. • Technological developments. • Budgeting. 	
TUESDAY	Learners brainstorm to write expressions in simplest forms	<ol style="list-style-type: none"> 1. Assist Learners to simplify algebraic expressions by adding. 2. Learners in small groups to discuss on how to simplify algebraic expressions by subtracting. 3. Discuss with Learners on how to write expressions for the perimeter of the shapes <p>Example 1</p> <p>The algebraic expression</p> $5x$ <p>is an example of one single term. It has factors 5 and x.</p> <p>The 5 is called the coefficient of the term and the x is a variable.</p> <p>Example 2</p> <p>$5x + 3y$ has two terms.</p> <p>First term: 5x, has factors 5 and x</p> <p>Second term: 3y, has factors 3 and y</p> <p>The 5 and 3 are called the coefficients of the terms.</p> <p>Example 3</p> <p>The expression</p> $3x^2 - 7xy + 2x^2 - 3x^2 - 7ab + 2\pi$ <p>has three terms.</p> <p>First term: $3x^2$ has factors 3 and x^2</p> <p>Second term: $-7xy$ has factors -7, a and b</p>	<p>Reflect on how to simplify expressions.</p> <p>Exercise;</p> <p>Simplify the following expressions:</p> <ol style="list-style-type: none"> 1. $5xx + 4 - 9yy + 3xx + 2yy - 7$ 2. $2pp - 3qq + 3pp + 5qq$ 3. $4xx + 7 - 2xx - 4$ 4. $7xxyy + 5xx - 4xx + 2xxyy - 3$

		<p>Third Term: $2\pi^2e\pi$; has factors 22, π, and e.</p> <p>The 33, $-7-7$ and 22 are called coefficients of the terms.</p> <p>Like Terms</p> <p>"Like terms" are terms that contain the same variables raised to the same power.</p> <p>Example 4</p> <p>$3x^2$ and $7x^2$ are like terms.</p> <p>Example 5</p> <p>$-8x^2$ and $5y^2$ are not like terms, because the variable is not the same.</p>	
THURSDAY	Demonstrate on how to solve multiplications of algebraic expressions.	<ol style="list-style-type: none"> 1. Assist learners to simplify algebraic expressions by multiplying. 2. Learners brainstorm to write expressions for the area of given shapes. 3. Assist Learners to solve division of algebraic expressions. <p>Multiplication of Two Monomials</p> <p>An algebraic expression is considered a monomial when it only contains one term like $5ab$. Monomials usually include variables, numbers, or multiple numbers and/or variables that are multiplied together.</p> <p>Product of two monomials = numerical coefficients \times variable parts</p> <p>Example: Find the product of $6ab$ and $-3a^2b^3$</p> <p>Solution</p> $ \begin{aligned} &6ab \times -3a^2b^3 \\ &= 6 \times -3 \times ab \times a^2b^3 \\ &= -18 \times a^{1+2} \times b^{1+3} \\ &= -18a^3b^4 \end{aligned} $	Individual Learners to practice solving more examples of division of algebraic expressions.

Multiplication of a Polynomial by a Monomial

An algebraic expression is considered a polynomial when it contains variables, coefficients, that involve only the operations of subtraction, addition, multiplication, and non-negative integer exponentiation of variables.

Multiply each term of the polynomial by the monomial, using the distributive law: $a \times (b + c) = a \times b + a \times c$

Example: Find following product: $5a^2b^2 \times (3a^2 - 4ab + 6b^2)$

Solution

$$\begin{aligned} & 5a^2b^2 \times (3a^2 - 4ab + 6b^2) \\ &= (5a^2b^2) \times (3a^2) + (5a^2b^2) \times (-4ab) + (5a^2b^2) \times (6b^2) \\ &= 15a^4b^2 - 20a^3b^3 + 30a^2b^4 \end{aligned}$$

Multiplication of Two Binomials

An algebraic expression is considered binomial when it is made of the sum or difference of two terms. We multiply two binomials by using the distributive law of multiplication twice.

Let us find the product of two binomials $(a + b)$ and $(c + d)$.

$$\begin{aligned} & (a + b) \times (c + d) \\ &= a \times (c + d) + b \times (c + d) \\ &= a \times c + a \times d + b \times c + b \times d \\ &= ac + ad + bc + bd \end{aligned}$$

Example: Multiply $(3a + 5b)$ and $(5a - 7b)$.

Solution

(I) Horizontal multiplication method

$$\begin{aligned} & (3a + 5b) \times (5a - 7b) \\ &= 3a \times (5a - 7b) + 5b \times (5a - 7b) \\ &= (3a \times 5a - 3a \times 7b) + (5b \times 5a - 5b \times 7b) \end{aligned}$$

		$= (15a^2 - 21ab) + (25ab - 35b^2)$ $= 15a^2 - 21ab + 25ab - 35b^2$ $= 15a^2 + 4ab - 35b^2$ <p>(II) Column wise multiplication</p> <hr/> <p>IV. Multiplication by Polynomial</p> <p>Example: Multiply $(5x^2 - 6x + 9)$ with $(2x - 3)$</p>	
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Name of Teacher:

School:

District: