



## Lesson Exemplar for Mathematics

Quarter 1 Lesson **2** 



## Lesson Exemplar for Mathematics Grade 8 Quarter 1: Lesson 2 (Week 2) SY 2025-2026

This material is intended exclusively for the use of teachers participating in the pilot implementation of the MATATAG K to 10 Curriculum during the School Year 2024-2025. It aims to assist in delivering the curriculum content, standards, and lesson competencies. Any unauthorized reproduction, distribution, modification, or utilization of this material beyond the designated scope is strictly prohibited and may result in appropriate legal actions and disciplinary measures.

Borrowed content included in this material are owned by their respective copyright holders. Every effort has been made to locate and obtain permission to use these materials from their respective copyright owners. The publisher and development team do not represent nor claim ownership over them.

Development Team						
<ul> <li>Writer:</li> <li>Yahweh M. Pasahol (Pedro Guevara Memorial National High School)</li> </ul>						
<ul> <li>Validator:</li> <li>Roldan S. Cardona (Philippine Normal University – North Luzon)</li> </ul>						
Management Team						
Philippine Normal University Research Institute for Teacher Quality SiMERR National Research Centre						

Every care has been taken to ensure the accuracy of the information provided in this material. For inquiries or feedback, please write or call the Office of the Director of the Bureau of Learning Resources via telephone numbers (02) 8634-1072 and 8631-6922 or by email at blr.od@deped.gov.ph.

## MATHEMATICS / QUARTER 1 / GRADE 8

I. CU	I. CURRICULUM CONTENT, STANDARDS, AND LESSON COMPETENCIES						
А.	Content Standards	The learners demonstrate knowledge and understanding of algebraic expressions and operations with monomials, binomials, and multinomials.					
B.	Performance Standards	By the end of the quarter, the learners are able to add and subtract monomials, and multiply combinations of monomials, binomials, and multinomials. (NA)					
C.	Learning Competencies and Objectives	<ul> <li>Learning Competency At the end of the lesson, the learners are able to <ol> <li>model real-life situations using algebraic expressions.</li> <li>Lesson Objective: Use real-life situations to illustrate algebraic expressions.</li> <li>add and subtract simple monomials.</li> <li>Lesson Objective: Add and subtract monomials and multinomials.</li> </ol></li></ul>					
D.	. Content	<ul> <li>3. Translate real-life situations into algebraic expressions</li> <li>4. Addition and Subtraction of Monomials, Binomials and Multinomials</li> <li>4.1 Addition and Subtraction of Monomials</li> <li>4.2 Addition and Subtraction of Binomials</li> <li>4.3 Addition and Subtraction of Multinomials</li> </ul>					
E.	Integration						

## **II. LEARNING RESOURCES**

A quote by Mark Twain. (2024). *Goodreads*. <u>https://www.goodreads.com/quotes/2528-keep-away-from-people-who-try-to-belittle-your-ambitions</u>

Alferez, M. S. (2007). MSA Elementary Algebra (2007 ed.). MSA Publishing House.

- Dela Torre, S.T. (2021, April 5). Mathematics Quarter 3 Module 4: Representing Quantities in Real-life Situations Using Algebraic Expressions and Equations. *DepEd Tambayan*. <u>https://depedtambayan.net/wp-content/uploads/2022/02/MATH6-Q1-MODULE4.pdf</u>
- Gloag, A. and Kramer, M. (2023). Addition and Subtraction of Polynomials. CK-12 Flexbooks. <u>https://flexbooks.ck12.org/cbook/ck-12-conceptos-de-%C3%A11gebra-nivel-b%C3%A1sico-en-espa%C3%B1ol/section/9.2/related/lesson/addition-and-subtraction-of-polynomials-bsc-alg/</u>
- Level Their Learning. (2024). Translating real world problems into algebraic expressions. *Teachers Pay Teachers*. <u>https://www.teacherspayteachers.com/Product/Translating-Real-World-Problems-into-Algebraic-Expressions-6575982</u>

Oronce, O. A. (2007). *E-math I' 2007 Ed. (elementary algebra)* (1st ed.). Rex Bookstore. Puzzle Maker. (2024). Word search puzzle. *Discovery Education*. <u>https://puzzlemaker.discoveryeducation.com/word-search</u> S., A. M., & Duro, M. C. (2007). *MSA elementary algebra* (2007 ed.).

III. TEACHING AND LEARNING PROCEDURE										NOTES TO TEACHERS			
A. Activating Prior Knowledge	<ul> <li>DAY 1</li> <li><b>1. Short Review</b></li> <li>Activity 1: Word Hunt</li> <li>Directions: Draw a line or shade the words that illustrate addition, subtraction, multiplication, or division.</li> </ul>								Activity 1 Answer Key: F   D   S   U   B   T   R   A   C   T   D   D				
	F	D	s	U	в	т	R	А	$\subset$	т	Е	D	MTCUDORPTWJĘ
	S	U	м	Р	т	R	м	R	А	Т	Ι	0	
	M	т	C	U	D	0	R	P	Т	W	כ -	E	
	D	н	C A	N	R	D		N	F	D	1		VMBATRTLQSSR
	U V	E	0 6	E	Ĕ	W T	E J	$\tilde{\mathbf{v}}$		Е	с С	N	RAUGE <u>CIWT</u> NSE PSUVORJYDIVE
	r V	F M	2	0	т	Р	л Т	÷.	с 0	п 5	E 5	E D	NQWXAZQIJMR
	° R	лч Д	п	$\hat{}$	' F	Ċ	т т	w	ч	N	2	F	
	P	ŝ		v	0	R	-	Ň	, D	т	v	F	FOGENOPFIDCD
	N	0	w	×	Ā	z	c	Т	נ	M	R	F	
	G	z	L	W	R	Ŷ	н	N	н	I	Q	I	
	F	0	G	Е	н	0	Р	F	I	D	c	D	
	Questions: 1. Which of th 2. Which of th 3. Which of th 4. Which of th 5. Can you for multiplication	e wor e wor e wor e wor think on, o	rds r rds r rds r rds r of r div	epre epre epre othe isior	sent sent sent sent er w	add sub mul divi ords	ition tract tipli sion s th	l? tion? catic ? at 1	o on? cepre	esent	ad	dition, subtraction,	



	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
B. Establishing Lesson Purpose	<b>1. Lesson Purpose</b> Jeepney Fare 2024 The minimum jeepney fare is Php 13 for the first 4 kilometers and Php 3 increase for each subsequent kilometer.	
	Questions:Lesson I1. How much will you pay if you travel for a seven-kilometer trip?1. How much will you pay if you travel for a seven-kilometer trip?2. If you let x be the number of kilometers traveled beyond the first four kilometer trip, what mathematical expression can you create to represent the jeepney fare?1. Php133. Considering your answer in #2, what do you call an expression which consists of numbers, variables and operations?algebra	<b>Purpose Answer:</b> 3 + Php3(3) = Php 22 .3 or 3x +13 raic expression
	<ul> <li>2. Unlocking Content Vocabulary <ul> <li>ALGEBRAIC EXPRESSION – an expression consisting of variables and constants along with algebraic operations (addition, subtraction, multiplication or division).</li> <li>ALGEBRAIC TERM – either a single number or letter, or the product of several numbers or letters. Terms are separated by the operations addition and subtraction.</li> <li>VARIABLE - any letter or symbol that represents a number</li> <li>CONSTANT – a number that has a fixed value that does not change</li> <li>SIMILAR TERMS – terms that have the same variable raised to the same power.</li> <li>MONOMIAL – an algebraic expression having one term</li> <li>BINOMIAL - an algebraic expression that contains at least two terms</li> </ul> </li> </ul>	

C. Developing and Deepening Understanding	SUB-T 1. Exj kilo pas wit	<b>FOPIC 1: Translate</b> <b>plicitation</b> In the activity aborometers traveled be ssenger if they exce th Php 3 increase for To easily translate t of the keywords fo	The teacher must emphasize that when "to" or "from" is added to the keyword, the order of the terms is interchanged. Example: x diminished by 2 is "x - 2".			
	А	Addition	Subtraction	Multiplication	Division	x diminished from 2 is
	S	um	subtract	times	quotient	"2 – x".
	n	nore than	take away	multiply	divided by	
	p	olus	diminish by/from	product	divided into	
	ir	ncreased by/from	less/less than	twice	ratio	
	a	dded by/to	difference	thrice		
	to	otal				
	<b>2. Wo</b> Tra	<b>orked Example</b> anslate the following 1. two more than y 2. thirteen pesos a 3. eight subtracted 4. v increased by f 5. twice a number 6. six less than m 7. z chocolates div 8. half of n kilogra 9. twelve chocolate 10.twice a number	g statements into algo y ballpens. added to x pesos. d from b marbles. five candies. m bacteria. passengers. vided by seven person ums of meat. es decreased by w ch	ebraic expression 1s. ocolates.	s.	Worked Example Answers: 1. y + 2 2. x + 13 3. b - 8 4. v + 5 5. 2m 6. m - 6 7. $\frac{z}{7}$ 8. $\frac{n}{2}$ or $\frac{1}{2}n$ 9. 12 - w 10. 2c

- 8. half of n kilograms of meat.9. twelve chocolates decreased by w chocolates.10.twice a number c books.

5







3. $-10b^{3}c + (-9 b^{3}c) + b^{3}c$ Solution: $-10b^{3}c$ $-9 b^{3}c$ $(+) \underline{b^{3}c}$ <b>B.</b> Find the difference of the following monomia 1. $9x^{2} - 4x^{2}$ Solution: 2. $-10ab - 15ab$ Solution: 3. $-12c^{2}d^{2} - (-8 c^{2}d^{2})$ Solution: 3. $-12c^{2}d^{2} - (-8 c^{2}d^{2})$ Solution: 3. $-12c^{2}d^{2} - (-8 c^{2}d^{2})$ Solution: 3. Lesson Activity Activity 4: Find the sum or difference of the form $1. 2x + (-5x)$ 9. $-2a^{2} - (-6a^{2})$ 10 3. $y + (-y)$ 11 4. $-9x^{2}y^{3} - (-9x^{2}y^{3})$ 12 5. $12ab^{2} - ab^{2}$ 13 6. $-16mn^{3} + (-12mn^{3})$ 14 7. $10a^{2}b^{3} - (-8 a^{2}b^{3}) + a^{2}b^{3}$ 15 8. $7xy + 4xy - (-21xy)$ DAY 3 SUB-TOPIC 3: Addition and Subtraction of Bine 1. Explicitation Tiles can be used to model algebraic expression 1 - tile $+$ $-1 - tilex - tile$ $+$ $-x - tilex^{2} - tile + -x^{2} - tile$	als. $9x^2 - 4x^2 = 5x^2$ -10ab + (-15ab) = -25ab $-12c^2d^2 + 8c^2d^2 = 20c^2d^2$ blowing monomials. $-8m^2n^2 + 7 m^2n^2 - 15m^2n^2$ $-b^2c^3 + (-b^2c^3) - (-b^2c^3)$ $15m^2n^3 - 12m^2n + 8m^2n$ $a^2b^4 + 2a^2b^4 - 9a^2b^4$ -18xyz + (-5xyz) - (-12xyz) 11ab - 6ab - 15ab $-21x^4 + 17x^4 - 12x^4$ bn e - e - he -	Teacher can tell the learners that they can also add/subtract polynomials horizontally. Make sure that only similar terms are added/subtracted. Activity 4 Answers: 1. $-3x$ 2. $46a^2$ 3. 0 4. 0 5. $11ab^2$ 6. $-28mn^3$ 7. $19 a^2b^3$ 8. $32xy$ 9. $-16m^2n^2$ 10. $-b^2c^3$ 11. $11m^2n$ 12. $-6a^2b^4$ 13. $-xyz$ 14. $-10ab$ 15. $-16x^4$
$x - tile$ + $-x - tile$ $x^2 - tile$ + $-x^2 - tile$	e – le –	



3. (18 + 6mn) + ( -8 - 19mn) + (12 - n Solution: 18 + 6mn -8 - 19mn (+) <u>12 - mn</u> <b>22 - 14mn</b>	nn)	
B. Find the difference of the following binot 1. $(7x^{2}+3x) - (x^{2} - 2x)$ Solution: $7x^{2} + 3x$ $(-) \underline{x^{2} - 2x}$ <b>6x^{2} + x</b>	mials.	
2. $(-a^{2}b^{3}c - 17) - (8a^{2}b^{3}c - 7)$ Solution: $-a^{2}b^{3}c - 17$ $(-) 8a^{2}b^{3}c - 7-9a^{2}b^{3}c -10$		
3. $(m^2 - 8n) - (3m^2 + 5n)$ Solution: $m^2 - 8n$ (-) $3m^2 + 5n$ $2m^2 - 3n$		
3. Lesson Activity Activity 5. Perfect Match Find the sum or difference of the given b corresponding answer in Column B. Write	inomials in Column A and it with its the letter before each number.	Activity 5 Answer: 1. F
Column A	Column B	2. D 3. A
1. (5a – 7b) – (2a – 5b)	A. 2a + 11b	4. H 5. C
2. (5a – 7b) + (2a – 5b)	B. a – 12b	6. B 7. F
3. (–9a + 3b) – (–11a – 8b)	C. 7a – 4b	8. I
4. (-9a + 3b) + (-11a - 8b)	D. 7a - 12b	9. K 10. J



2. Worked Example Binomials and trinomials are multinomials. Since binomials are already discussed in the previous lesson, this time you will add and subtract trinomials. A. Find the sum of the following trinomials. 1. (5a - 2b + 4c) + (-a - 3b + 8c)Solution: 5a - 2b + 4c(+) -a - 3b + 8c4a - 5b + 12c2.  $(8x^2 + 2x - 9) + (-14x^2 - 2x - 11)$ Solution: $8x^2 + 2x - 9$  $(+) -14x^2 - 2x - 11$ -**6x**<sup>2</sup> - 20 3. (-m - 9n + 16) + (-5m - 18n + 11) + (-3m + 13n - 21)Solution: -m - 9n + 16(+) -5m - 18n + 11(+) -3m + 13n - 21-9m - 14n - 6 B. Find the difference of the following trinomials. 1. (21w - 8x + 13) - (-11w - 12x + 17)Solution: 21w - 8x + 13(-) -11w - 12x + 1710w + 4x - 42.  $(2a^2 + 14a - 4) - (a^2 - a - 4)$ Solution:  $2a^{2} + 14a - 4$  $(-) a^2 - a - 4$  $a^2 + 13a$ 3.  $(5y^2 - 6y + 12) - (-11y^2 - 7y + 19)$ Solution:  $5y^2 - 6y + 12$ (-)  $-11y^2 - 7y + 19$  $16 y^2 + y - 7$ 

	<ul> <li>3. Lesson Activity Activity 6: Passage to Encourage Directions: Find the sum or the difference of the multinomials in Box 1. Then write the letter on the blank for the multinomial that corresponds to your answer in Box 2 to decode the famous person who said the mentioned inspiring quote. <i>"Keep away from people who try to belittle your ambitions. Small people always do that, but real great people make you feel that you too can become great."</i></li></ul>	Activity 6 Answer Key: $     \underline{M}  \underline{A}  \underline{R}  \underline{K} $ -13y <sup>2</sup> +24y 13a-12 3y <sup>2</sup> -2y -5a-20
	Box 1 $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	-9b <sup>2</sup> c + 19bc + 1 -7a <sup>3</sup> b <sup>2</sup> c + 4ab + 13 a <sup>3</sup> b <sup>2</sup> c - 10ab - 23 1 + 18y 19 + 3y
D. Making Generalizations	<ul> <li>DAY 4</li> <li>Learners' Takeaways         Use the Frayer Diagram to show what you         learned.</li> <li>Reflection on Learning         Are there any challenges or         misconceptions you encountered while         studying the lesson? If there are, what         are those?</li> <li>Similar Terms         Monomial,         Binomial,         Trinomial          Monomial,         Binomial,         Trinomial      </li> </ul>	The teacher will ask the learners of the important lessons they've learned.

IV. EVALUATING LEARN	VING: FORMATIVE ASSESSMENT AND TEACHER'S REFLECTION	NOTES TO TEACHERS
A. Evaluating Learning	<ol> <li>Formative Assessment         <ol> <li>Translate the following into mathematical expressions.</li> <li>five times the price of x ballpens.</li> <li>the amount to be paid for x kilos of meat if each kilo costs y pesos.</li> <li>the sum of the points gained by Axl and Gelo in a basketball game if Axl got nine more than the score of Gelo.</li> <li>each student's share of marbles if there are x marbles and y students.</li> <li>John's score in a game is 4 increased by b points.</li> <li>the average of Ben's grade in the first and second quarter if he got m and n in the two quarters respectively.</li> <li>twelve pesos less a discount of d.</li> <li>Tim's tokens in an arcade game is x less than twenty.</li> <li>the perimeter of a triangle if the sides of a triangle are three consecutive numbers.</li> <li>a hours less than the time traveled t.</li> </ol> </li> </ol>	Formative Assessment Answer Key: A. 1.5x 2. xy pesos or Php xy 3. (x)+(x+9) or $2x + 9$ 4. $\frac{x}{y}$ 5. 4+b 6. $\frac{m}{n}$ 7. 12 -d 8. 20 - x 9. (x)+(x+1) + (x+2) or $3x + 3$ 10. t - 3
	<ul> <li>B. Find the sum or difference of the following polynomials. <ol> <li>(-x<sup>4</sup>y<sup>2</sup> - 3) + (-14x<sup>4</sup>y<sup>2</sup> + 9)</li> <li>(9 - 5ab + 6a) - (-12 - 3ab - 3a)</li> <li>(-10a<sup>2</sup>b<sup>2</sup> + 1) + (14a<sup>2</sup>b<sup>2</sup> + 8)</li> <li>(b<sup>2</sup>c<sup>3</sup> - 17) - (-4b<sup>2</sup>c<sup>3</sup> - 6)</li> <li>(-17x<sup>2</sup>y + 11xy - 2) + (-7x<sup>2</sup>y - 11xy - 8)</li> <li>(-abc + 2b + 6c) - (7abc - 9b - 13c)</li> <li>(m<sup>2</sup> - 3m - 5) + (m<sup>2</sup> + 10m - 8)</li> <li>(11mn + 11) - (12mn - 8)</li> <li>(18p<sup>2</sup>q - pq<sup>2</sup>) + (-8p<sup>2</sup>q + 2pq<sup>2</sup>)</li> <li>(5x<sup>3</sup>y<sup>2</sup> - 7) - (-4x<sup>3</sup>y<sup>2</sup> + 11)</li> </ol> </li> <li>C. Solve the problems. <ol> <li>A garment factory produces two sizes of shirts, large and small. If x represents the number of large shirts and y represents the number of small shirts, then the polynomial 230x + 170y + 100 describes the revenue from the sale of the shirts. The polynomial 170x + 140y + 55 describes the cost of producing the shirts. Write an expression in simplest form for net profit from the sale of the shirts of the garments factory.</li> </ol></li></ul>	B. 1. $-14x^4y^2 + 6$ 2. $21 - 2ab + 8$ 3. $4a^2b^2 + 9$ 4. $4b^2c^3 - 11$ 5. $-24x^2y - 10$ 6. $-8abc + 11b + 19c$ 7. $2m^2 + 7m - 13$ 8. $mn + 19$ 9. $10p^2q + pq^2$ 10. $9x^3y^2 - 18$ C. 1. $60x + 30y + 45$ 2. $3x + 3$ units

	<ul> <li>2. Find the perimeter and x.</li> <li>2. Homework (Optional) Write an expression for the 1.</li> <li>35 * 4 2x 5x - 1</li> </ul>	Homework Answer Key: 1. 10x + 3 2. 12x -2 3. 12x		
B. Teacher's Remarks	Note observations on any of the following areas: strategies explored materials used learner engagement/ interaction others	Effective Practices	Problems Encountered	The teacher may take note of some observations related to the effective practices and problems encountered after utilizing the different strategies, materials used, learner engagement, and other related stuff. Teachers may also suggest ways to improve the different activities explored/lesson exemplar.
C. Teacher's Reflection	<ul> <li>Reflection guide or prompt car</li> <li><u>principles behind the te</u> What principles and be Why did I teach the les</li> <li><u>students</u> What roles did my students</li> <li><u>ways forward</u> What could I have done What can I explore in the</li> </ul>	Teacher's reflection in every lesson conducted/facilitated is essential and necessary to improve practice. You may also consider this as an input for the LAC/Collab sessions.		