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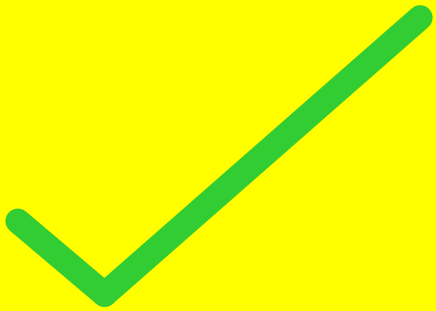
Transcript Check



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GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

Name: _____ Date: _____

Interpret Language in Math Expressions

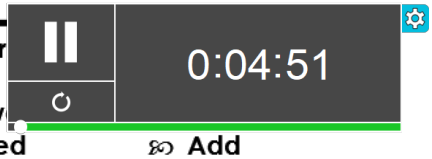
Definitions:

Vocabulary	Definition	Examples
Algebraic Expression	Can have variables, numbers, addition, subtraction, multiplication, division, ~~parenthesis~~, square roots, exponents.. no = sign	$3x$ $4x$ -23 $4x+3$
Variable	Symbols or letters used to represent any number	x, y, z
Term	Items (numbers, variables, or both) that are separated by a + or −	$3x + 4$
Like Terms	Terms that contain the same variable raised to the same exponent	$3x^2$ and $4x^2$ $5x$ and $7x$
Coefficient	The number in front of a variable	$3x$
Exponent	number up top how many times you multiply the # by itself	3^2
Base	the bigg on the bottom	3^2
Constant	A number that has no variable (or has a variable raised to the zero power)	15 $15x^0$
Order of Operations	P. E. M. D. A. S	

GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

Translating Expressions

Translations: Fill in the appropriate words for each math oper



- Half
- Plus
- Triple
- More Than
- Difference
- To the power of
- Sum
- Decreased
- Twice
- Less Than (swaps the order)
- Raised to a power
- Take aw
- Increased
- Cubed
- Minus
- Quotient
- Product
- Divide by
- Add
- Times
- Together
- Square

Addition- (6 words)

Plus Sum increase add together more than

Subtraction- (5 words)

Decreased, less than, Takeaway, minus, difference

Division- (3 words)

Half, Quotient, divide by

Multiplication- (5 words)

Triple Twice Times Product Double

Exponents- (4 words) Cubed, Raised to a power to the Power of, Square

Practice: Write the expression for each verbal description:

1. the difference of 10 and 5

Subtract

$10-5$

2. The quotient of 14 and 7

divide

$\frac{14}{7}$

$7\overline{)14}$

$14 \div 7$

3. y decreased by 17

$y-17$

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GSE Algebra 1 Unit tities Notes

4. x increased by 6 $x+6$	5. The sum of q and 8	6. 6 squared 6^2
7. twice q ~~2~~ $2q$ $2 \cdot q$ $2 \times q$	8. 4 times 5 plus 7	
9. The product of 9 and x squared $9 \cdot x^2$ $9x^2$	10. 9 more than twice k ~~$k+9$~~ $2k+9$	
11. The sum of a number and 10 $x+10$	12. 9 less than g to the fourth	
13. 2 minus the quantity 3 more than p $(3+p)-2$ ~~$2-(3+p)$~~ → parenthesis	14. Half of the quantity 1 more than w	

15. Five times a number increased by 6 is the same as 3 times the same number decreased by 7.

equals

$5xy+5$ $3x5-7$

$5y+5 = 3y-7$

16. Four times a number plus 10 minus two times the same number is 6.

Practice: Write each as a verbal expression.

1. $\frac{x}{2}$ 2. $3a + 9$ 3. $19 - 3$ 4. $5n$

x divided by 2 19 minus 3 5 times n

3 times a plus 9

GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

4. x increased by 6	5. The sum of q and 8	6. 6 squared

7. twice q	8. 4 times 5 plus 7
9. The product of 9 and x squared	10. 9 more than twice k
11. The sum of a number and 10	12. 9 less than g to the fourth
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GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

Algebraic Expressions

An expression containing variables (letters), numbers, and operation symbols is called an Algebraic Expression. An example of an algebraic expression is 5x + 7y – 3.

In an algebraic expression, there are four different parts: coefficients, variables, constants, and terms.

5x + 7y - 3

Variables are the letters in an expression.

x and y

Coefficients are the numbers in front of the variables.

5 and 7

Constants are the "plain numbers."

-3

Terms are separated by a + or – sign and can be numbers and/or variables

5x , 7y , -3

Complete the table below.

Expression	How Many Terms?	List Variables	List Constants	List Coefficients
2x + 5	2	x	5	2
13	1	none	13	none
6m – 9n + s - 4	4	m, n, s	-4	6, -9, 1
x^2 + 7x -1	3	x^2, x	-1	1, 7

same # of things

Combining Like Terms

Which terms are like terms? (Not all terms will be used.)

Circle all terms that can be combined with 3a.	*Draw a square around all terms that can be combined with 4b.*	*Underline all terms that can be combined with a^2.*	*Draw an X through all terms that can be combined with 5.*
1. 14a	2. 5ab	3. 3b	4. $3a^2$
5. $4b^2$	6. 17	7. 100	8. 14ab
9. $5a^3$	10. 4a	11. 16b	12. $73a^2$

GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

Practice. Combine Like terms. Then identify the number of terms.

1. -3p + 6p

3p

2. b – 3 + 6 – 2b

3. 8m + 1n – 3 + 10

8m + 1n + 7

4. $9x - 10x^2 + 7x - 3$

5. –6k + 7k

k or 1k

6. n – 10 + 9n – 3

7. –2x + 11 + 6x

4x + 11

8. –8k + 2k – 1 + 9k

Classifying Expressions by Number of Terms and Degree

- **Standard Form**: order the terms from the largest exponent to the smallest exponent.
- **Degree**: the largest exponent
  - Classify by degree:

Highest Exponent (degree)	Name
4	4th degree
3	cubic
2	quadratic
1	linear
0	constant

$6x^4 + 5x^3 + 4x^2 + 3x + 2$

$5x^3 + 4x^2 + 3x + 2$

$4x^2 + 3x + 2$

$3x + 2$

2

- **Leading Coefficient**: _____ in front of the variable with highest exponent
- Classify by terms:

Number of Terms	Name
4 or higher	polynomial
3	trinomial
2	binomial
1	monomial

$5x^3 + 4x^2 + 3x + 2$

$4x^2 + 3x + 2$

$3x + 2$

2

GSE Algebra 1 Unit 1 – Relationships Among Quantities Notes

	Standard Form Combine like terms. Order terms from the largest exponent to the smallest exponent.	Classify by Degree Based on the largest exponent. Constant, Linear, Quadratic, Cubic, 4th Degree, 5th Degree.	Classify by Terms Based on the number of terms. Monomial, Binomial, Trinomial, 4 Term Polynomial, 5 Term Polynomial.
1. $9 + 2x^3 + 7x^3 - 2x^3$	$-7x^3 + 9$	cubic	bi
2. $-8 + 9x^5 - 8$	$9x^5$	5th degree	mono
3. 7	7	constant	mono
4. $-8 - 5x^3 + 4x^5 - 4x - 6$	$4x^5 - 5x^3 - 4x - 14$	5th	poly
5. $-3 - 8x^3 - 6x$	$-8x^3 - 6x - 3$	cubic	tri
6. $4 + 8x^4$			
7. $-8 + 7x^4$			
8. $-3x^3$			
9. 8			
10. $5 - 8x$			
11. $5 + 7x^5$			
12. 5			
13. $-9x^5 - 7x$			
14. $4x + x$			
15. $9 - 3x^5 - 2x^2$	$-3x^5 - 2x^2 + 9$	5th	tri
16. $-x^2$			
17. $4x^3 + 9x^4 + 7$	$9x^4 + 4x^3 + 7$	4th	tri
18. 2			
19. $-9x^4 + 7x^4 - 8$			
20. $3 - 4x^3 + 1$			

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GSE Algebra 1 Unit 1 – Relationships Among Quantities Practice

Name:_____ Date: _____

Identifying and Translating Algebraic Expressions

Classify each as **M** (monomial), **B** (binomial), **T** (trinomial), **P** (polynomial), or **C** (constant).

1)._____ $2x+1$ 2)._____ $17x^2+11$ 3)._____ $8x^3+2x^2+3x-7$

4)._____ -130 5)._____ $4a^2+7a-10$ 6)._____ $10x^3-2x+1$

7.) Circle the problems that are in **standard form**. If it is not in standard form, re-write in standard form.

a. x^3-11x^2 b. $2+3x+4x^2+3x^3$ c. $-3x+17x^4+2x^2$ d. $-1+3x+2x^2$

_____ _____ _____ _____

8.) Given: $2x^3-5x^2-2x+12$

How many terms are there? ____

What is the coefficient of the 3rd term? ____

What is the constant? _____

Translate each verbal expression to an algebraic expression.

9.) Eight more than 3 times a number 10.) The difference of 10 and a number

11.) Three-fourths the square of a number 12.) The product of 5 and the cube of a number increased by the difference of 6 and x

Translate each algebraic expression to a verbal expression.

13.) $25-x$ 14.) x^4-12

Attachments

Syllabus - Math I A.doc