

\_\_\_\_\_ : an unknown quantity or expression whose value can change.

\_\_\_\_\_ : parts of an expression separated by + or - signs

\_\_\_\_\_ : the part of math sentence whose value is always the same, represented by a numeral.

\_\_\_\_\_ : A numerical or constant quantity placed before and multiplying the variable in an algebraic expression.

\_\_\_\_\_ : a combination of variables, numbers, and/or operations that represents a mathematical relationship, but no statement of equality or inequality. (DOES NOT HAVE AN \_\_\_\_\_). An expression in English is short and not a complete sentence, for example: "Hey!" or "Look Out!"

\_\_\_\_\_ : a mathematical statement that two or more expressions are equal. (MUST HAVE AN \_\_\_\_\_).

\_\_\_\_\_ : An algebraic relation showing that a quantity is greater than or less than another quantity. ( $>$ ,  $<$ ,  $\geq$ ,  $\leq$ )

EX:

$2 + 4 - 3k + 5f$  is an \_\_\_\_\_

$5x - 4 > 31$  is an \_\_\_\_\_

$2 + 4 - 3k + 5f = 31$  is an \_\_\_\_\_

Constant: \_\_\_\_\_ Coefficient: \_\_\_\_\_

Variable: \_\_\_\_\_ Number of Terms: \_\_\_\_\_

## Algebraic Expressions and Equations Vocabulary **KEY**

**Variable:** an unknown quantity or expression whose value can change.

**Term:** parts of an expression separated by + or - signs

**Constant:** the part of math sentence whose value is always the same, represented by a numeral.

**Coefficient:** A numerical or constant quantity placed before and multiplying the variable in an algebraic expression.

**Expression:** a combination of variables, numbers, and/or operations that represents a mathematical relationship, but no statement of equality or inequality. (DOES NOT HAVE AN **equal sign!**). An expression in English is short and not a complete sentence, for example: “Hey!” or “Look Out!”

**Equation** a mathematical statement that two or more expressions are equal. (MUST HAVE AN **equal sign**).

**Inequality** An algebraic relation showing that a quantity is greater than or less than another quantity. ( $>$ ,  $<$ ,  $\geq$ ,  $\leq$ )

EX:

$2 + 4 - 3k + 5f$  is an **expression**

$5x - 4 > 31$  is an inequality

$2 + 4 - 3k + 5f = 31$  is **an equation**

Constant: **2, 4**      Coefficient: **3, 5**

Variable: **k, f**      Number of Terms: **4**

Name \_\_\_\_\_

**Translating Expressions Homework:** Translate the following in a math sentence

1. Four plus a number \_\_\_\_\_
2. Twice Daria's age \_\_\_\_\_
3. Six times a number plus forty-one \_\_\_\_\_
4. The sum of a number and 17 \_\_\_\_\_
5. The difference between Mary's height and Frank's height \_\_\_\_\_
6. The quotient of Iquan's age and 4 \_\_\_\_\_
7. The product of Arielle's age and 50 \_\_\_\_\_
8. Seventy-five increased by a number \_\_\_\_\_
9. Four hundred decreased by twice a number \_\_\_\_\_
10. Eleven pies more than a number \_\_\_\_\_
11. Twice as many dogs \_\_\_\_\_
12. A number doubled plus ten \_\_\_\_\_
13. A variable tripled less 40 \_\_\_\_\_
14. Twice the temperature minus 60 degrees \_\_\_\_\_
15. A number divided by fifteen less than 3 \_\_\_\_\_
16. Five more than a number \_\_\_\_\_
17. Thirty-three less than a number \_\_\_\_\_
18. Twice Solomon's weight less fifteen pounds \_\_\_\_\_
19. The difference between sixty and twice a number \_\_\_\_\_
20. The factor of a variable and the coefficient four \_\_\_\_\_

## Evaluate Expressions Homework

Name: \_\_\_\_\_

If  $x = 9$     $y = 5$

1.  $3 + y$

2.  $y + 8$

3.  $4y$

4.  $y^2 + x$

5.  $300y$

6.  $x^2 - 2y$

7.  $2y + 3 \bullet x$

8.  $10y - x$

9.  $2xy$

## Evaluate Expressions Warm-up

Name: \_\_\_\_\_

If  $a = 2$ ,    $b = 6$

1.  $ab$

2.  $\frac{4b}{2}$

3.  $\frac{2b - a}{5a}$

4.  $3b - 4a$

5.  $a^3 + 2b$

6.  $b^2 \div (4 + a)$

7.  $\frac{8b}{a+4}$

8.  $5b - a \bullet 4$

9.  $7 - b \div 2$

## Evaluate Expressions Homework Key

1. 8

2. 13

3. 20

4. 34

5. 1,500

6. 71

7. 117

8. 41

9. 90

## Warm Up Key

1. 12

2. 12

3. 1

4. 10

5. 20

6. 6

7. 8

8. 22

9.  $\frac{1}{2}$

## Evaluate Expressions Guided Practice

Name: \_\_\_\_\_

If  $f = 7$ ,  $g = 10$ ,  $h = 4$

1.  $\frac{3+h}{g-3}$

2.  $g^2 + 2h$

3.  $\frac{4g}{h}$

4.  $\frac{h^3 + g}{3h+2g+7}$

5.  $\frac{6h-8}{2g}$

6.  $\frac{(g^3 - 20f)}{4} \div 5$

7.  $2(g + 3) - 13$

8.  $10f - h^3$

9.  $(2f - h) + \frac{f^2}{h+3}$

## Evaluate Expressions Independent Practice

Name: \_\_\_\_\_

If  $a = 3$ ,  $b = 12$

1.  $\frac{(ab)^2}{7b-b}$

2.  $\frac{36-2b}{2}$

3.  $\frac{2(b-a)}{6a}$

4.  $3ab - 4a$

5.  $a^0 + \frac{2b}{a}$

6.  $b^2 - (4 + a^4)$

7.  $\frac{10b}{a+7}$

8.  $156 - 3b \div 4$

9.  $(a \bullet 2)^5$

## Evaluate Expressions Guided Practice Key

1. 1

2. 108

3. 10

4. 4

5.  $\frac{4}{5}$

6. 43

7. 13

8. 6

9. 17

## Independent Practice Key

1. 18

2. 6

3. 3

4. 96

5. 9

6. 59

7. 12

8. 147

9. 7,776

Name \_\_\_\_\_

**Translating Algebraic Expressions and Equations:** Write each phrase or sentence as an algebraic expression

- 1) A number increased by seven \_\_\_\_\_
- 2) Mary's age increased by nine \_\_\_\_\_
- 3) The sum of five and a number \_\_\_\_\_
- 4) Six more than DeAndre's age \_\_\_\_\_
- 5) A number reduced by nine \_\_\_\_\_
- 6) Twice Sonya's age \_\_\_\_\_
- 7) The difference between Brandon's age and George's age \_\_\_\_\_
- 8) The quotient of fifteen and a variable \_\_\_\_\_
- 9) The sum of five and a number tripled \_\_\_\_\_
- 10) The product of six and a variable \_\_\_\_\_

**Write each math sentence in words**

- 11)  $77h$  \_\_\_\_\_
- 12)  $x - 5f$  \_\_\_\_\_
- 13)  $\frac{x}{2}$  \_\_\_\_\_
- 14)  $m - 22$  \_\_\_\_\_
- 15)  $7x - 3$  \_\_\_\_\_

Write each phrase or sentence as an algebraic equation

p.2

- 1) Maria's age multiplied by six is forty-two \_\_\_\_\_
- 2) The product of five and a number less six is four \_\_\_\_\_
- 3) Four times a number equals two hundred \_\_\_\_\_
- 4) Twice as old as Vinnie is fifty \_\_\_\_\_
- 5) Stan's age divided by four all less than two is eight \_\_\_\_\_
- 6) The quotient of 48 and the number of hours worked is six \_\_\_\_\_
- 7) A sum of a number and ten is fourteen \_\_\_\_\_
- 8) The factor of five and a number is two and a half \_\_\_\_\_
- 9) Ms. Jamison's age less four is twenty-nine \_\_\_\_\_
- 10) Sixteen more than a number is thirty-six \_\_\_\_\_

Write each math sentence in words

- 11)  $6 + m = 40$  \_\_\_\_\_
- 12)  $5y = 40$  \_\_\_\_\_
- 13)  $\frac{x}{5} = 40$  \_\_\_\_\_
- 14)  $2m - 4 = 40$  \_\_\_\_\_
- 15)  $6x + 4 = 40$  \_\_\_\_\_

Name \_\_\_\_\_

**Translating Algebraic Expressions and Equations:** Write each phrase or sentence as an algebraic expression **ANSWER KEY**

- 1) A number increased by seven  **$g + 7$**
- 2) Mary's age increased by nine  **$m + 9$**
- 3) The sum of five and a number  **$5 + n$**
- 4) Six more than DeAndre's age  **$d + 6$**
- 5) A number reduced by nine  **$t - 9$**
- 6) Twice Sonya's age  **$2s$**
- 7) The difference between Brandon's age and George's age  **$b - g$**
- 8) The quotient of fifteen and a variable  **$\frac{15}{m}$**
- 9) The sum of five and a number tripled  **$5 + 3x$**
- 10) The product of six and a variable  **$6x$**

**Write each math sentence in words**

- 11)  $77h$  **Product/factor of 77 and number, 77 times a number, etc**
- 12)  $x - 5f$  **a number less 5 times a number, etc**
- 13)  $\frac{x}{2}$  **a variable divided by 2, the quotient of a number and 2, etc**
- 14)  $m - 22$  **22 less than a number, a number less 22, the difference of a number and 22, etc**
- 15)  $7x - 3$  **the product of seven and a number less three. Three less than the product of seven and a number**

**Write each phrase or sentence as an algebraic equation**

- 1) Maria's age multiplied by six is forty-two  $6m = 42$
- 2) The product of five and a number less six is four  $5x - 6 = 4$
- 3) Four times a number equals two hundred  $4x = 200$
- 4) Twice as old as Vinnie is fifty  $2v = 50$
- 5) Stan's age divided by four all less than two is eight  $\frac{x}{4} - 2 = 8$
- 6) The quotient of 48 and the number of hours worked is six  $\frac{48}{h} = 6$
- 7) A sum of a number and ten is fourteen  $g + 10 = 14$
- 8) The factor of five and a number is two and a half  $5x = 2\frac{1}{2}$
- 9) Ms. Jamison's age less four is twenty-nine  $j - 4 = 29$
- 10) Sixteen more than a number is thirty-six  $x + 16 = 36$

**Write each math sentence in words**

- 11)  $6 + m = 40$  **six more than a number is 40, a number plus six is 40, increased by, sum, etc.**
- 12)  $5y = 40$  **factor/product of five and a number is 40, 5 times a number is 40, etc.**
- 13)  $\frac{x}{5} = 40$  **the quotient of a number and five is forty, a number divided by five is 40, etc.**
- 14)  $2m - 4 = 40$  **twice a number less four is forty, two times a number less 4 is forty, the difference between twice a number and four is forty, etc.**
- 15)  $6x + 4 = 40$  **the factor of six and number increased by four is forty, four more than the product of six and a number is forty**

**Expressions, Equations, Inequalities Warm Up Name \_\_\_\_\_**

\_\_\_\_\_ A combination of variables, numbers, and at least one operation that represents a mathematical relationship, but no statement of equality or inequality. (DOES NOT HAVE A \_\_\_\_\_).

\_\_\_\_\_ : a mathematical statement that two or more expressions are equal. (MUST HAVE A \_\_\_\_\_).

\_\_\_\_\_ : An algebraic relation showing that a quantity is greater than or less than another quantity. ( $>$ ,  $<$ ,  $\geq$ ,  $\leq$ )

**Circle the appropriate term to describe the math sentence**

- |                       |                   |                 |                   |
|-----------------------|-------------------|-----------------|-------------------|
| 1. $5x + 3y$          | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 2. $5 > 3$            | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 3. $6g \leq 23$       | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 4. $19 + x = 4$       | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 5. $8c - 4y + 2$      | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 6. $12 = 2s$          | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 7. $x + 5 \geq 4 - t$ | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 8. $6 + 5f - 9t > 35$ | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |
| 9. $4 + 2$            | <b>Expression</b> | <b>Equation</b> | <b>Inequality</b> |

10. Give an example of an expression, equation, and inequality

\_\_\_\_\_

Name: \_\_\_\_\_

Identify each of the following as an expression, an equation, or an inequality.

- |  |            |          |            |
|--|------------|----------|------------|
| 1. $5x + y = 7g$   | Expression | Equation | Inequality |
| 2. $5 \leq 3 - d$  | Expression | Equation | Inequality |
| 3. $6t$  | Expression | Equation | Inequality |
| 4. $19 + x > 4$  | Expression | Equation | Inequality |
| 5. $4c - 4h - 2t$  | Expression | Equation | Inequality |
| 6. $12 - g$  | Expression | Equation | Inequality |
| 7. $x + 5 \geq 4 - t$  | Expression | Equation | Inequality |
| 8. $6 + f - 7t = 35$   | Expression | Equation | Inequality |
| 9. $4 + 2 = x - p$   | Expression | Equation | Inequality |
| 10. $4st$  | Expression | Equation | Inequality |
| 11. $4st = 6j$   | Expression | Equation | Inequality |
| 12. $Bg > 8$   | Expression | Equation | Inequality |
| 13. $9 \leq 4 - r$   | Expression | Equation | Inequality |
| 14. $13 = 5 + k$   | Expression | Equation | Inequality |
| 15. Give an example of an expression, equation, and inequality |            |          |            |

\_\_\_\_\_

## Expressions, Equations, Inequalities Warm Up

## ANSWER KEY

**EXPRESSION** A combination of variables, numbers, and at least one operation that represents a mathematical relationship, but no statement of equality or inequality.  
(DOES NOT HAVE AN **EQUAL SIGN**)

**EQUATION:** a mathematical statement that two or more expressions are equal.  
(MUST HAVE AN **EQUAL SIGN**)

**INEQUALITY:** An algebraic relation showing that a quantity is greater than or less than another quantity. ( $>$ ,  $<$ ,  $\geq$ ,  $\leq$ )

Circle the appropriate term to describe the math sentence

1.  $5x + 3y$       Expression    Equation    Inequality

2.  $5 > 3$       Expression    Equation    Inequality

3.  $6g \leq 23$       Expression    Equation    Inequality

4.  $19 + x = 4$       Expression    Equation    Inequality

5.  $8c - 4y + 2$       Expression    Equation    Inequality

6.  $12 = 2s$       Expression    Equation    Inequality

7.  $x + 5 \geq 4 - t$       Expression    Equation    Inequality

8.  $6 + 5f - 9t > 35$       Expression    Equation    Inequality

9.  $4 + 2$       **Expression**    Equation    Inequality

10. Give an example of an expression, equation, and inequality **see examples**

**above** \_\_\_\_\_

Name: \_\_\_\_\_

**ANSWER KEY**

Identify each of the following as an expression, an equation, or an inequality.

- |                       |                   |                 |                   |
|-----------------------|-------------------|-----------------|-------------------|
| 1. $5x + y = 7g$      | Expression        | <u>Equation</u> | Inequality        |
| 2. $5 \leq 3 - d$     | Expression        | Equation        | <u>Inequality</u> |
| 3. $6t$               | <u>Expression</u> | Equation        | Inequality        |
| 4. $19 + x > 4$       | Expression        | Equation        | <u>Inequality</u> |
| 5. $4c - 4h - 2t$     | <u>Expression</u> | Equation        | Inequality        |
| 6. $12 - g$           | <u>Expression</u> | Equation        | Inequality        |
| 7. $x + 5 \geq 4 - t$ | Expression        | Equation        | <u>Inequality</u> |
| 8. $6 + f - 7t = 35$  | Expression        | <u>Equation</u> | Inequality        |
| 9. $4 + 2 = x - p$    | Expression        | <u>Equation</u> | Inequality        |
| 10. $4st$             | <u>Expression</u> | Equation        | Inequality        |
| 11. $4st = 6j$        | Expression        | <u>Equation</u> | Inequality        |
| 12. $Bg > 8$          | Expression        | Equation        | <u>Inequality</u> |
| 13. $9 \leq 4 - r$    | Expression        | Equation        | <u>Inequality</u> |
| 14. $13 = 5 + k$      | Expression        | <u>Equation</u> | Inequality        |

15. Give an example of an expression, equation, and inequality **see examples**

**above** \_\_\_\_\_

## Translating Inequalities & Review

Name: \_\_\_\_\_

Write an inequality for each sentence:

1. Ms. Whitten's height is greater than or equal to 60 inches \_\_\_\_\_
2. a number increased by seventeen is greater than seventy-one \_\_\_\_\_
3. Michala's weekly earnings at \$8 per hour were no more than \$50 \_\_\_\_\_
4. The sum of Mary and John's age is less than their mom's age of 40 \_\_\_\_\_
5. Eduardo's age at least 14 \_\_\_\_\_

6. Which best describes the underlined portion of the equation?

$$3y = \underline{7}x - 9$$

- A. term
- B. coefficient
- C. expression
- D. variable

7. Which best describes the underlined portion of the equation?

$$3y = \underline{7x} - 9$$

- A. term
- B. coefficient
- C. expression
- D. variable

8. How many terms in the following expression? \_\_\_\_\_

$$3y - 7x + 9$$

9. Give an example of an inequality, equation, and expression. Translate the math sentence into words.

Inequality:

Expression:

Equation:

10. Which of the following is *not* true?

- a.  $2x + 3 = 33$  is an expression
- b.  $3k + 15$  is an expression with two terms
- c. In the expression  $5b - 2c$ , the coefficient of  $c$  is 2
- d.  $4k - 5y$  is an expression with two variables

11. Which of the following is *not* true?

- a.  $9x + 4$  is an expression with one variable
- b.  $4n + 6k - 9$  is an expression with 2 terms
- c. In the expression,  $7w + 4z$ , the coefficient of  $w$  is 7
- d.  $5g + 3 = 63$  is an equation

## Translating Inequalities & Review

## ANSWER KEY

Write an inequality for each sentence:

1. Ms. Whitten's height is greater than or equal to 60 inches  $w \geq 60$
2. a number increased by seventeen is greater than seventy-one  $x + 17 > 71$
3. Michala's weekly earnings at \$8 per hour were no more than \$50  $8h < 50$
4. The sum of Mary and John's age is less than their mom's age of 40  $m + j < 40$
5. Eduardo's age at least 14  $n \geq 14$
6. Which best describes the underlined portion of the equation?

$$3y = \underline{7}x - 9$$

- A. term  
B. coefficient  
C. expression  
D. variable

7. Which best describes the underlined portion of the equation?

$$3y = \underline{7}x - 9$$

- A. term  
B. coefficient  
C. expression  
D. variable

8. How many terms in the following expression? **3**

$$3y - 7x + 9$$

9. Give an example of an inequality, equation, and expression. Translate the math sentence into words. **Answers will vary**

Inequality:

Expression:

Equation:

10. Which of the following is *not* true?

- a.  $2x + 3 = 33$  is an expression
- b.  $3k + 15$  is an expression with two terms
- c. In the expression  $5b - 2c$ , the coefficient of  $c$  is 2
- d.  $4k - 5y$  is an expression with two variables

11. Which of the following is *not* true?

- a.  $9x + 4$  is an expression with one variable
- b.  $4n + 6k - 9$  is an expression with 2 terms
- c. In the expression,  $7w + 4z$ , the coefficient of  $w$  is 7
- d.  $5g + 3 = 63$  is an equation

$6 \geq x + 5$	$7 + 8x - 2y$	$7 + 8x = 39$
$9d$	$6 < 5y$	$5d - 6$
$8h \bullet 6$	$\frac{2}{3}x = 18$	$5x + 4 \leq 29$
$5 + k = 21$	$\frac{7h + 12}{6 - h}$	$x \div 2 \geq 3$
Bailey's age is at least 55	Mila's earnings of eight dollars per hour	The product of a number and fourteen is twenty-eight
A number reduced by four	Dylan's height increased by 4 inches is no more than 6 feet	Kaley's age increased by a number is fifteen
Twenty-five candies distributed to a number of students is five	Twice a given number is more than thirty three	A given amount of fabric divided into four pieces
Shantelle's weight is no more than a hundred pounds	Three times a number is twelve	A bag of candy increased by eleven candies
Maggie's age plus Gary's age	The sum of four and a number	The height of a building is at least two hundred feet tall
Three people per car	The jet travelled ten times faster than a car at exactly 500 mph	The distance to Dallas is at least a thousand miles
The number of cakes decreased by three	The difference between a variable and twenty is four	Four times the student's age

Sort the attached into the appropriate categories. Translate the written samples into math sentences.

**Expression**

**Equation**

**Inequality**

Sort the attached into the appropriate categories. Translate the written samples into math sentences.

## Expression

## Equation

## Inequality

$6 \geq x + 5$ Inequality	$7 + 8x - 2y$ Expression	$7 + 8x = 39$ Equation
$9d$ Expression	$6 < 5y$ Inequality	$5d - 6$ Expression
$8h \cdot 6$ Expression	$\frac{2}{3}x = 18$ Equation	$5x + 4 \leq 29$ Inequality
$5 + k = 21$ Equation	$\frac{7h + 12}{6 - h}$	$x \div 2 \geq 3$ Inequality
Bailey's age is at least 55 $b \geq 55$ Inequality	Mila's earnings of eight dollars per hour $8h$ Expression	The product of a number and fourteen is twenty-eight $14x = 28$ Equation
A number reduced by four $g - 4$ Expression	Dylan's height increased by 4 inches is no more than 6 feet $d + 4 \leq 6$ Inequality	Kaley's age increased by a number is fifteen $k + n = 15$ Equation
Twenty-five candies distributed to a number of students is five $25 \div x = 5$ Equation	Twice a given number is more than thirty three $2x > 33$ Inequality	A given amount of fabric divided into four pieces $\frac{h}{4}$ Expression
Shantelle's weight is no more than a hundred pounds $s \leq 100$ Inequality	Three times a number is twelve $3f = 12$ Equation	A bag of candy increased by eleven candies $b + 11$ Expression
Maggie's age plus Gary's age $m + g$ Expression	The sum of four and a number $4 + k$ Expression	The height of a building is at least two hundred feet tall $h \geq 200$ Inequality
Three people per car $3c$ Expression	The jet travelled ten times faster than a car at exactly 500 mph $10c = 500$ Equation	The distance to Dallas is at least a thousand miles $d \geq 1,000$ Inequality
The number of cakes decreased by three $3x - 3$ Expression	The difference between a variable and twenty is four $X - 20 = 4$ Equation	Four times the student's age $4t$ Expression

# Math Vocabulary Sort

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# Math Vocabulary Sort

Cut and Paste Terms  
and glue onto notes

Brainstorm Additional  
Terms

Multiplied by	Increased by	Divided by
Quotient	Difference	Times
Twice	Product	Sum
More than	Less than	Decreased by
Quotient	Triple	Less
Double	Minus	More
Plus	Factor	Take away
Reduced by		