Clifton High School Mathematics Summer Workbook

Math Connections IV-H
(9th Grade)

Completion of this summer work is required on the first day of the school year.

Date Received: _____ Date Completed: _____

Student Signature: _____

Parent Signature: _____

Dear Parents and Guardians,

Attached is the mathematics workbook that your child is required to work on over the summer. Our goal is that your child will continue to work on appropriate math skills and concepts to maintain the progress made during the previous grade. This work will help prepare your child for the next level. Summer workbooks can be accessed online through the Clifton web site:

- http://www.clifton.k12.nj.us/cliftonhs/index.html
- click on: mathematics summer workbooks

Please sign to indicate the date the workbook was received and the date it was completed. Encourage your child to work through the booklet a section at a time during July and August. Your child's math teacher will collect the booklet during the first week of school. Giving time and thought to this work will help to maximize your child's grade on the test given in September. The test will be based on the work shown and will count as the first test of the school year. The grade will be determined as follows:

- Completion of the workbook on time will count as 20% of the grade.
- Performance on the test will count as 80% of the grade.

Thank you for your anticipated cooperation.

Sincerely,

Michael Doktor
CHS Principal

Mary Campbell
Supervisor of Mathematics 9-12

Part I - Vocabulary

Match the given words to the correct definition.

absolute value	equation	GCF	prime number	sum
base	exponent	integers	product	variable
composite number	expression	LCM	quotient	<
difference	factors	ordered pair	rational number	>
root	reciprocal	solution set	monomial	conjugates
quadrant	origin	slope of a line	term	coefficient
function				

1) _____ a mathematical sentence that contains an equal sign

2) _____ made up of quantities and the operations performed on them (does not contain $=, \neq, <, \leq, >, \geq$)

3) _____ a symbol that is used to represent a number

4) _____ used to locate points (x,y) in the coordinate plane

5) _____ the set of numbers that contains whole numbers and their opposites (symbol is Z)

6) _____ a number that can be expressed in the form a/b where a and b are integers and b $\neq$ 0 (symbol is Q)

7) _____ the distance a number is from zero on the number line

8) _____ the quantities that are being multiplied in a multiplication expression

9) _____ a whole number greater than 1, with exactly two factors, 1 and itself

10) _____ the greatest number that is a factor of two or more integers

11) _____ the "x" in an expression of the form x^n

12) _____ the "n" in an expression of the form x^n

13) _____ the numerical factor of a monomial

14) _____ a relation with exactly one output for each input

15) _____ an expression that is a number, a variable, or the product of a number and variables

16) _____ the point (0,0) where the x-axis and the y-axis intersect on a coordinate plane

17) _____ the multiplicative inverse of any nonzero real number

18) _____ the ratio of vertical change (the rise) to horizontal change (the run) for a non-vertical line

19) _____ the four regions into which two perpendicular number lines separate the coordinate plane

Part II. Circle the letter of the correct answer. **Show all work on a separate piece of paper**.

1) Solve: $\frac{1}{3}y + 28 = -5.$

A. -11 B. 11

C. -99 D. 96

2) Solve: $3x + 17 - 5x = 12 - (6x + 3)$

A. 2 B. -2

C. -4 D. 4

3) If $7x + 4 = -19 + 5x$, then $2x - 14 = ?$

A. 37 B. -37

C. 2 D. $\frac{-23}{2}$

4) Solve for r: $A = p + prt$

A. $\frac{A}{1+tp}$ B. $t(A - p)$

C. $\frac{A-p}{pt}$ D. $\frac{pt}{A-p}$

5) Solve: $4x + 5 \leq 3 + 6x$

A. $x \leq -4$ B. $x \geq 1$

C. $x \leq 4$ D. $x \geq -4$

6) Find the slope of the line that passes through (4,7) and (1,3).

A. $\frac{-4}{3}$ B. $\frac{3}{4}$

C. $\frac{4}{3}$ D. 2

7) Find the slope and y-intercept of $y = -\frac{3}{2}x + 4.$

A. $m = 2, b = \frac{3}{2}$ B. $m = -\frac{3}{2}, b = 4$

C. $m = \frac{3}{2}, b = -2$ D. $m = 2, b = -3$

8) Find the equation of the line containing the point (-3,5) with a slope of 4.

A. $y = 4x - 7$ B. $y = 4x$

C. $y = -4x - 24$ D. $y = 4x + 17$

9) If $\begin{cases} 3x + y = 10 \\ x - 4y = -1 \end{cases}$, then $y =$

A. 1 B. 3

C. -2 D. $\frac{7}{13}$

10) Simplify: $(4x^2y^3)^2$

A. $8x^4y^5$ B. $16x^4y^5$

C. $4x^4y^6$ D. $16x^4y^6$

11) Simplify: $(4xy^2)^{-3}$

A. $-64x^3y^6$ B. $\frac{1}{4x^3y^6}$

C. $\frac{1}{64x^3y^6}$ D. $-\frac{4}{x^3y^6}$

12) Simplify: $\frac{x^2y^6z^3}{x^2y^2}$

A. y^4 B. y^4z^3

C. z^3 D. xyz

13) Simplify: $(4c^4+1)-(7c^3-3)+(2c^4+5c^3)$

A. $6c^4+2c^3-4$ B. $6c^4+2c^3+4$

C. $6c^4-2c^3+4$ D. $2c^4-2c^3-2$

14) $(3x-2)(4x+1)$

A. $12x^2-8x-2$ B. $12x^2+5x-2$

C. x^2-5x-2 D. $12x^2-5x-2$

15) $(x-4)(x+4)$

A. x^2-16 B. x^2+16

C. $x^2-8x+16$ D. $x^2+8x+16$

16) $(3x+4)^2$

A. $9x^2+12x+16$ B. $9x^2+16$

C. $9x^2+24x+16$ D. $25x^2$

17) One factor of $5x^2-3x-2$ is

A. $5x+2$ B. $5x-2$

C. $5x-1$ D. $x+1$

18) Factor: $8a^2-17a+2$

A. $(2a-2)(4a-1)$ B. $(8a-2)(a-1)$

C. $(8a+1)(a-2)$ D. $(8a-1)(a-2)$

19) Factor: $25x^2-16y^2$

A. $(5x-4y)^2$ B. $5(5x-4y)$

C. $(5x+4y)(5x-4y)$ D. $(5x+2y)(5x-8y)$

20) One of the solutions of $3x^2+11x=4$ is

A. 0 B. $\frac{-11}{3}$

C. 4 D. $\frac{1}{3}$

Part III – Open-Ended. Show all work in the boxes provided. Circle your final answers.

1) Find all the values of *x* such that $\|x - 3\| = 12$.	2) Simplify: $(x^2 - 3x + 2) - (3x^2 - 5x - 1)$
3) Simplify: $(2x - 1)(4x + 1)$	4) Simplify: $(2x - 1)(x^2 - 4x + 2)$
5) Simplify: $\frac{6m^2+2m}{2m}$	6) Simplify: $(-3a^7b^{-6}c^{-3})(-2a^{-5}b^2c^{-4})$
7) Simplify: $\frac{27ab^2c^7}{3a^5b^3c^4}$	8) Factor: $4x^2 - 49$

9) Factor: $2x^2 + 5x - 3$	10) If $\frac{x-2}{4} = \frac{2x+1}{3}$, then $x =$
11) Solve $1 - 5x < 3$. Then graph the solutions.	12) Solve $3x + 4 > 6x - 1$. Then graph the solutions.
13) Find the slope of the line that contains the points (-3,2) and (0,0).	14) Find the equation of the line that contains the point (-2,1) and has a slope of -2.
15) Find the equation of a line parallel to $3x + 2y = 7$ that passes through the point (2,6).	16) Find the equation of a line perpendicular to $3x + 2y = 7$ that passes through the origin.

17) Solve the system of equations: $\begin{cases} 2x + 5y = 7 \\ x + y = -1 \end{cases}$

18) Solve: $x^2 + 13x - 30 = 0$

19) Given the linear equation $2x - 3y = 8$, answer the following:

a) Solve for *y*.

b) Find the slope.

c) Find the *x*-intercept

d) Find the *y*-intercept

e) Graph the equation.