# Honors Algebra 1 Summer Packet

This packet contains pre-algebra concepts that are essential for algebra 1. All problems should be completed without a calculator. There will be limited calculator use during the first semester of this course to ensure fluency with integer operations and fractions. Be sure to SHOW YOUR WORK.

This packet is due on the first day of school. The packet will count as three homework grades for the first marking period. After briefly review the information in this packet with additional notes and examples, <u>you will be tested on the material</u>.

Enjoy your summer and see you in the fall!

Honor Algebra 1 Summer Packet Name: \_\_\_\_\_

Name

## Variables & Expressions

## General Questions: Answer each question using complete sentences.

1.	What is the difference between an expression and an equation?	<ol> <li>For each operation (+, -, x, ÷), name three words or expressions that indicate the operation.</li> </ol>
3.	What are like terms? Give an example of two like terms.	4. How do you combine like terms?

## Vocabulary, Equations & Expressions

- 5. (Circle) the constant and <u>underline the coefficient</u> for each expression below.
  - a. 5x 3
  - b. 2x + 7
  - c. 2-4x
  - d. x + 3
- 6. Create an algebraic expression with a coefficient of 7 and a constant of 4.
- 7. Create an algebraic expression with a coefficient of -1 and a constant of -12.
- 8. Which of the following are algebraic expressions? Circle all that apply.

5x - 2 $8x = 8$ W $14 + 5x$ $2W - 6$ $4x - 6$	- 8 = 9
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# Translating between Words & Expressions

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4 times x	The sum of x and 6	The product of 9 and y	w less than 8
5 more than x	The difference of 6 and x	9 times the sum of x and 4	The product of 5 and y divided by 3
The quotient of 300 and the quantity of x times 2	The product of 7 and x minus the quantity of 4 less than y	The quotient of 35 and the quantity of x minus 7	The quantity of 9 more than x divided by the quantity of 12 less than y

9. Translate the words into an algebraic expression.

# Tables & Expressions

Complete the table.

10			
10.	n	-n²	
	-5		
	10		
	-15		

n	4 less than n
-20	
18	
-16	
14	

Write an expression for the following situations.

- 11. Tiffany has 6 dollars less than Jessica. Jessica has x dollars. Tiffany's money:
- 12. The recipe calls for twice the amount of sugar than flour. There is F amount of flour in the recipe. Amount of sugar:
- 13. Mark's quiz grade is one more than twice Ted's quiz grade. Ted's quiz grade is x. Mark's quiz grade:

## **Evaluating Expressions**

14. Evaluate the expression for the given value

$(2n+1)^2$ for $n=-3$	8(x+5)(x-2) for $x = 4$	$-3x^2 for x = 2$
$-x^2 for x = -6$	$\frac{x}{y}$ + 7 for x = 12 and y = 1/2	x - (2x - 8) for x = 10

## Combining Like Terms

15. Simplify each expression.

7x + 8x	15x <sup>2</sup> + 5x <sup>2</sup>	9(x + 5) - 7(x - 3)
7y + 8x + 3y + 2x	6y – 3y – 2(y – 1)	2(x – y + z) -4(x – y + z)

16. MULTIPLE CHPICE: Which situation is best modeled by the expression 25 - x?

- a. George places "x" more video games on a shelf with 25 games
- b. Sarah has driven "x" miles of a 25 mile trip
- c. Amelia paid \$25 of an "x" dollar lunch she shared with Ariel
- d. George has 25 boxes full of "x" baseball cards each

17. There were three times as many adults as students attending a school play. If the attendance was 480, how many adults and how many students attended the play?

a)	360 students	b)	240 students
	120 adults		240 adults
c)	120 students	d)	160 students
	360 adults		320 adults

18.A group of 15 parents buys tickets to a fundraiser show and receives a group discount of \$2 off the regular ticket price p. Which expression represents the total cost of the tickets, in dollars?

a)	15 • p + 2	b)	15 • (p - 2)
c)	p - 15 • 2	d)	p•(15-2 <b>)</b>

19. Claire has had her driver's license for three years. Bill has had his license for "b" fewer years than Claire. Which expression can be used to show the number of years Bill has had his driver's license?

a)	3 + b	b)	b + 3
c)	3 - b	d)	b < 3

## Variables & Expressions Short & Extended Constructed Response

- 20. A rectangle is 6 inches longer than it is wide. Write and simplify an expression for the perimeter of the rectangle in terms of the width **w**.
- 21. You and a friend worked in the school store last week. You worked 4 hours less than your friend. Let **h** be the number of hours your friend worked. Write an expression in simplest form that represents the total number of hours you both worked.

## Solving Equations

22. Solve each equation. Be sure to show all work.

x + 9 = -8	$\frac{w}{3} = -2$	30 = 12 <i>m</i>
x - (-6) = 12	$\frac{-1}{6}y = 5$	2x - 7 = 13
$\frac{1}{2}(m-5) = 9$	$\frac{x}{-4} + 8 = -3$	-3(x+2) - 4(3-x) = 11

23. Gabby Abby is a local phone company. It costs \$50 for the first line and every additional line is \$15.50. The Smith family is thinking of getting a phone plan for the family.

- a. Write an equation that represents the cost to open a line for each of the family members. Define your variables.
- b. What is the greatest amount of family member that could open a line without exceeding \$500?
- c. How much would it cost if there are a total of five family members and they have a coupon for 15% off the final price?