

LONG M. S.
2012 SUMMER PACKET

ALGEBRA 1

**DUE DATE: FIRST WEEK OF
SCHOOL.**

SHOW ALL WORK

PART 1: Basic computations

- 1) Perform the following computations for the give values of x and y, perform your computation on separate sheet.

x	y	x - y	-x - y	2x - y ²	-3xy	x ⁰ - 4y	y - x	x/y + y/x	2(x-3y)
2	3								
-2	-3								
-2	3								
2	-3								

- 2) If $f(x) = x + 3$, what is the value of $f(-7)$?
- 3) If $f(x) = |x+3| - 5$, what is the value of $f(-6)$?
- 4) Evaluate or simplify each of the following expressions:
- $3^5(3^4) =$
 - $x^2(x^3) =$
 - $a^{11}/a^4 =$
 - $3^{-2} =$
 - 7 ± 3
- 5) Determine the reciprocal of each of the following:
- $\frac{3}{5}$
 - $-\frac{2}{3}$
 - $4\frac{3}{5}$
- 6) What is the value of eighteen divided by half?
- 7) Jonny took five math tests and his average was 88% for the five tests, if his third test score was 71%, what score should he have made on the third test so that the average of the five test will give him at least and **A** grade?

8) What is the exact value for $\sqrt{20}$?

9) Complete a Pascal triangle with 8 Rows and describe at least 4 algebraic patterns:



PART 2: Working with Variables

- 1) In the expression: $3x^2 - 5x + 4$
 - a. Which one is the coefficient of x ?
 - b. Evaluate the quadratic expression for $x = -3$
- 2) Simplify each expression:
 - a. $2x + 5y - 7x =$
 - b. $2(3x + 5) - 8y =$
 - c. $3x(3 - 5x) + 5x =$
- 3) Solve each equation step by step:
 - a. $14 = 3x + 2$
 - b. $6x + 5 = 4x + 9$
 - c. $3(x + 2) = 15$
 - d. $2 - 3(x + 1) = 6x - 9$
 - e. $2x - 10 = 3(x - 9)$
 - f. $\frac{1}{2}(18x - 8) = 6x - \frac{7}{2}$
- 4) Write an equation for the following scenario: James has x nickel, and five more dimes than nickels but her total is less than \$2.20.

- 5) Draw the graph for each of the given inequalities:
 - a. $X < 12$
 - b. $X \geq -3$
 - c. $-5 < x \leq 6$
- 6) Find the domain for the given range if $y = 2x - 5$
{ -5, -1, 3, 15 }
- 7) What do you understand with the following algebraic terminology?
 - a. Dependent and independent variables
 - b. Domain and Range
 - c. Discrete and Continuous data
 - d. X- and y-intercept
 - e. Function and relation
 - f. Slope of a linear relation (Δ)

PART 3: Equal VS Inequality

Home work: Solve for x in each column and show a number line for each solution; write a paragraph describing the similarities and differences of the two problems. (ALG 1.7A and ALG1.7B) (Help; See SB Alg1 BK: pp41 to pp50, Activity 1.6 **or** SB Book 3, pp 99 to pp106, Activity 2.5)

$2x - 3 - 6x = 25$	$2x - 3 - 6x > 25$
	

Write a paragraph describing the similarities and differences of the two problems on the space below.

Bonus Problem: $\frac{5}{6} \geq -\frac{2}{3} + 2x$

PART 4: Guess my rule (PDF)

Guess My Rule

1.

Term Number	Numerical Value of Term
0	11
1	16
2	21
n	

2.

Term Number	Numerical Value of Term
0	1.3
1	2.5
2	3.7
n	

3.

Term Number	Numerical Value of Term
0	4
1	2
2	0
n	

4.

Term Number	Numerical Value of Term
0	25
1	18
2	11
n	

5.

Term Number	Numerical Value of Term
0	20
1	24
2	28
n	

6.

Term Number	Numerical Value of Term
5	10.1
6	13.1
7	16.1
n	

7.

Term Number	Numerical Value of Term
3	21
4	20
5	19
n	

8.

Term Number	Numerical Value of Term
10	-9
11	-14
12	-19
n	

9.

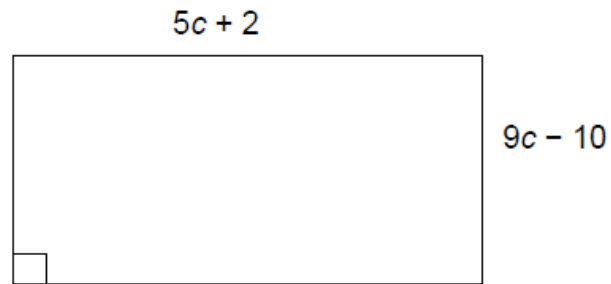
Term Number	Numerical Value of Term
0	1
1	2
2	5
3	10
4	17
n	

10.

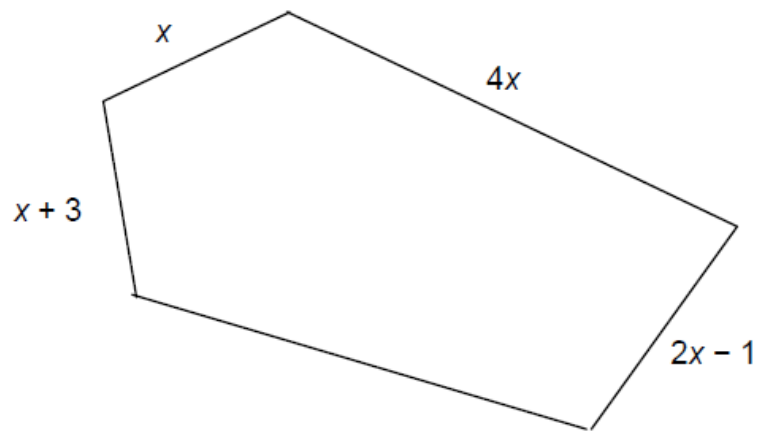
Term Number	Numerical Value of Term
0	0
1	2
2	6
3	12
4	20
n	

PART 5: Perimeter (PDF)

1. Find the perimeter.



2. The perimeter is $13x + 20$. Find the missing side.

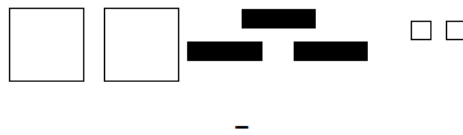


PART 6: Adding and subtracting polynomials with algebra tiles (PDF).

Next, demonstrate subtraction of polynomials as shown below. Model each step concretely, then record symbolically what is happening. Students should also model and record on their activity sheets.

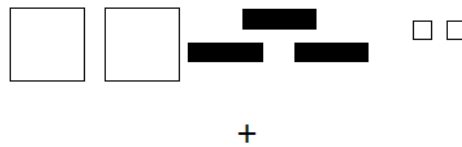
Model original problem:

$$(2x^2 - 3x + 2) - (3x^2 + 2x - 1)$$



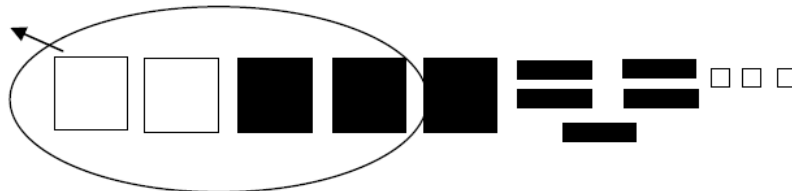
Apply the Definition of Subtraction (add the opposite)

$$(2x^2 - 3x + 2) + (-3x^2 - 2x + 1)$$



Combine like terms

$$(2x^2 + -3x^2) + (-3x + -2x) + (2 + 1)$$



Simplify

$$-x^2 + -5x + 3$$



Pictorial Representation	Symbolic Representation
	$(3x^2 + 2x + 3) + (2x^2 - x - 2)$
	$(2x^2 - 3x + 2) - (3x^2 + 2x - 1)$
	$(x^2 + x - 3) - (2x^2 - 2x - 2)$