Name: _____ Middle School: _____

What students need to know for…….

Grade 9 Algebra 1

Students expecting to take Algebra 1 next year at Lowell High should demonstrate the ability to:

General:

- ❖ Keep an organized notebook
- ❖ Be a good note taker
- ❖ Complete homework every night
- ❖ Be active learners
  - ➢ Ask questions and participate in class
  - ➢ Seek help outside of class if needed
- ❖ Work with others
- ❖ Work with and without a calculator

Specific math skills:

- ❖ Work with fractions, decimals, and integers comfortably
- ❖ Solve various types of equations
  - ➢ One-step/two-step
- ❖ Identify different functions using multiple representations
  - ➢ Table/equation/graphically
  - ➢ Linear/quadratic/absolute value
- ❖ Solve ratios and proportions
- ❖ Understand exponents and roots

Lowell High School Summer Readiness Packet
(Algebra 1)

Please show all your work.

1. $\sqrt{7}$ is between what two consecutive integers?	2. $2^3 \times 2^4 = 2^p$ What is the value of p?	3. $x^3 = 8$ Find the value(s) of x .
4. Simplify: $\sqrt[3]{27}$	5. Identify the Slope(m) and the y-intercept(b) for $y = 2x + 1$ m = _____ b = _____	6. Simplify: $-3 + 8 \div 2 + 7$
7. Simplify: $-7(2) - (-12)$	8. Simplify: $5x - 3x + 25 + 16x$	9. Simplify: $3(2x - 4)$

10. Evaluate: $-4x + 5 \ for \ x = -2$	11. Evaluate: $x^2 + z^3 \div 2 \ for \ x = 4 \ and \ z = 2$	12. Evaluate: $(2 - 2c) \div 5 \ for \ c = 6$
13. Evaluate: $\|m\| - \|2n\| \ for \ m = -12 \ and \ n = 8$	14. Simplify: $\frac{5^4}{5^2}$	15. Simplify: 4^{-2}
16. Simplify: $m^3 \cdot m^6$	17. Simplify: $(n^4)^3$	18. Solve for the unknown: $x + 20.6 = 64.3$
19. Solve for the unknown: $9 = \frac{x}{3}$	20. Solve for the unknown: $3x - 7 = 8$	21. Solve for the unknown: $4 - x = 7$

22. Solve for the unknown:

$\frac{x}{4} = \frac{5}{20}$

23. Use the table below:

x	y
0	3
2	11
4	19
6	27
8	35

m = _____

b. Find the y intercept

b = _____

24. Simplify the following

a. $4 - 8 =$

b. $-2 - (-5) =$

c. $12(-3) =$

d. $\frac{-48}{-12} =$

College level STOP HERE

25. Determine which of the following is the lesser quantity and explain why it is less.

$-2\frac{5}{11}$, -2.45

26. Simplify: $(3n^2m^4)^2$

27. Solve for the unknown:

$5(3x - 10) = 40$

28. Solve for the unknown:

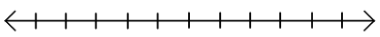
$6x - 2 = x + 13$

29. Solve for the unknown:

$7.8y + 2 = 165.8$

30. Solve the inequality and illustrate the solution set on the given number line:

$w - 4 \leq 9$



31. To solve $-\frac{1}{2}(3x - 5) = 7$, you can use the Distributive Property, order of operations, or you can multiply each side of the equation by -2. Which method do you prefer? Explain why?

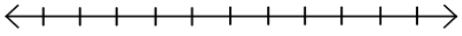
32. Find the mistake in this solution. Explain the mistake and show how to solve the problem correctly.

$$2x = 11x + 45$$
$$2x - 11x = 11x - 11x + 45$$
$$9x = 45$$
$$\frac{9x}{9} = \frac{45}{9}$$
$$x = 5$$

33. Determine whether this relation is a function or not a function $\{(3, 7), (3, 8), (3, -2), (4, 5), (0, 2)\}$

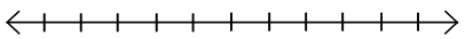
34. Determine whether this relation is a function or not a function $\{(2, 5), (3, -5), (4, 5), (5, -5)\}$

35. Solve the inequality and illustrate the solution set on the given number line:
$1 - 4x \geq 4 - x$



36. Solve for the unknown:
$10z - 5 + 3z = 8 - z$

Honors level STOP HERE

37. Solve the equation and justify each step using appropriate mathematical language. If this equation has no solution, explain why. $2(3x - 6) = 3(2x - 4)$	38. Solve the inequality and illustrate the solution set on the given number line: $-2(0.5 - 4x) \geq -3(4 - 3.5x)$ 	39. Write an equation in slope-intercept form for the line that passes through the following points: $(6, -4), (-3, 5)$
40. Write an equation in slope-intercept form for the line that passes through the following points: $(3, -8), (-2, 5)$.	41. Evaluate $f(x) = 15 - x \text{ when } x = -3$	42. Elvaulate $g(x) = x^2 + 2 \text{ when } x = -5$

Videos that may help	
Solving Equations and Inequalities	• Solving One Step Equations • Solving Two Step Equations • Solving Equations with Variables on Both Sides • Different Types of Solutions Equations Can Have
Simplifying and Evaluating Expressions	• Combining Like Terms • Distributive Property • Evaluating Expressions
Exponent Rules	• Multiplying & dividing powers • Powers of products & quotients
Functions and Function Notation	• Relations and Functions • Function Notation • Function Notation
Writing the Equation of a Line	• Finding Slope from Coordinates • Writing Lines in Slope Intercept Form