

**West Essex Middle School**  
**Algebra I Honors Summer Packet**

Algebra I is a rigorous course designed for mathematically talented students who have the conceptual and computational background and maturity to pursue an honors-paced subject. Topics are covered in depth and at an accelerated pace. The curriculum covers algebraic skills and concepts necessary for an understanding of all future mathematics to be studied. Abstract and numerical reasoning are emphasized. Topics include: the real number system, absolute value, linear, quadratic, polynomial, radical, rational and exponential equations, functions, systems of equations and inequalities. Graphing calculators are employed to extend concepts. Students learn a variety of problem solving techniques and will apply arithmetic principles to specific algebraic topics. Standardized test preparation is integrated throughout the course. **The completion of a summer assignment is required.**

To be successful in Algebra 1, you will need:

- A lot of pencils
- Graph paper
- A binder with loose-leaf paper
- A TI-83 or 84 graphing calculator

Over the summer, it is your responsibility to review and master the concepts in this packet.

- You will be required to hand in the completed packet on **THE SECOND DAY OF SCHOOL (August 31st)**. No exceptions.
- Each page is worth 2 points homework grade (You must show **all** work to receive full credit)
- This packet should be done **WITHOUT** a calculator.
- Use [Khan Academy](#) for assistance.

**Topic**

Comparing Numbers  
Evaluating Expressions  
Distributive Property and Combining Like Terms  
Solve Proportions  
Solving Equations

**Suggested Date of Completion**

7/8/2023  
7/22/2023  
8/5/2023  
8/19/2023  
8/26/2023

## Comparing and Ordering Numbers

Compare the two numbers. Write the answer using  $<$ ,  $>$ , or  $=$ . ([Compare Numbers Videos](#))

1.  $-16.82$  and  $-14.09$

2.  $0.40506$  and  $0.00456$

3.  $\frac{7}{13}$  and  $\frac{3}{13}$

4.  $\frac{7}{10}$  and  $\frac{3}{4}$

5.  $17\frac{1}{4}$  and  $17\frac{2}{8}$

6.  $-\frac{5}{9}$  and  $-\frac{15}{27}$

Write the numbers in order from least to greatest. ([Order Numbers Videos](#))

7.  $-45,617$ ;  $-45,242$ ;  $-40,099$ ;  $-40,071$

8.  $23.12$ ,  $-23.5$ ,  $-24$ ,  $-23.08$ ,  $-24.01$

9.  $\frac{3}{5}$ ,  $\frac{3}{2}$ ,  $\frac{3}{4}$ ,  $\frac{3}{10}$ ,  $\frac{3}{7}$

10.  $\frac{1}{3}$ ,  $\frac{5}{6}$ ,  $\frac{3}{8}$ ,  $\frac{5}{4}$

## Evaluating Expressions

Evaluate the expression without using a calculator. ([Order of Operations Khan Videos](#))

11.  $180 - (30 + 45)$

12.  $8^2 + (-6)^2$

13.  $\frac{1}{2}(100-74)$

14.  $(8-2) \cdot 180$

15.  $-7 + 2^3 - 9$

16.  $\frac{5+7 \cdot 3}{6+7}$

Evaluate the expression for the given value(s) without using a calculator. ([Substitute Variables and Simplify Videos](#))

17.  $-3x^2$ ;  $x = -3$

18.  $\frac{x+2}{x-2}$ ;  $x = -2$

19.  $\frac{q(p+r)}{4}$ ;  $p = -5$ ,  $q = 2$ , and  $r = 1$

20.  $(-3x)^2$ ;  $x = 7$

21.  $x^2 - 7x$ ;  $x = -6$

22.  $p + \left(\frac{q}{2}\right)^3$ ;  $p = -4$ ,  $q = 2$

### Distributive Property and Combining Like Terms

Use the distributive property to write the expression without parentheses. ([Distributive Property Videos](#))

23.  $2(a + 4)$

24.  $-(-3x + 2)$

25.  $\frac{1}{2}(6y - 2)$

26.  $4b(b + 3)$

27.  $\frac{2}{3}x(9x - 12)$

28.  $0.25(8 - 2z)$

29.  $(j - 1)(-3)$

30.  $\frac{1}{4}(4x - 16) - 7x$

Simplify each expression ([Combine Like Terms Videos](#))

31.  $-5m + 4 + 7m$

32.  $-6a + a(3a + 3)$

33.  $6h - 3h(h + 1)$

34.  $-3(-2x - 3) - 8x$

35.  $3 - (2x - 7)$

36.  $2(x + 4x) - 7$

## Proportions

Solve each proportion ([Solving Proportions Video](#))

$$37. \frac{10}{8} = \frac{n}{10}$$

$$38. \frac{6}{x+1} = \frac{2}{7}$$

$$39. \frac{4}{3} = \frac{8}{-2+x}$$

$$40. \frac{3}{x-3} = \frac{9}{x-5}$$

$$41. \frac{n}{2} = \frac{5}{20}$$

$$42. \frac{3}{k-8} = \frac{8}{k+7}$$

## Solving Equations

Solve for the given variable. ([Solving Equations With Variables on Both Sides Video](#))

$$43. -(v - 4) = -6 + 4v$$

$$44. -6 - 8(1 + 5n) = -14 + n$$

$$45. 8(-6n + 5) = n + 40$$

$$46. -5(-3r + 1) = 40 + 6r$$

$$47. 6b + 5 + 1 = -2(1 - 3b) - 8(1 - b)$$

$$48. -5x + 2(4 - 4x) = -7x - 29$$

$$49. 5(4p + 7) = -(1 - 8p)$$

$$50. 2(1 - 5m) - 3m = -4(2m - 8)$$