

## West Essex Middle School Algebra I CPA 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 accelerated math course. 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.*
- **ALL work** must be shown to receive credit.
- Each page is worth 2 points homework grade
- This packet should be done **WITHOUT** a calculator.
- Use Khan Academy for assistance.

### Topic

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

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

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

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

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

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.  $-2(n - 6)$

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

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

31.  $-m + 4 + 7m$

32.  $-2a + a(3a + 3)$

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](#))

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

$$38. \frac{7}{5} = \frac{x}{3}$$

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

$$40. \frac{7}{n} = \frac{8}{7}$$

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

$$42. \frac{3}{x} = \frac{7}{6}$$

- **Solving Equations**

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

$$43. 2x + 5 = 21$$

$$44. -3x - 8 = -20$$

$$45. 7(8 - 4n) = 112$$

$$46. -92 = -4(-7 + 6p)$$

$$47. -7x + 4(5x + 2) = -18$$

$$48. -5(-3r + 1) - 6r = 40$$

$$49. 5x + 7(x - 6) = -126$$

$$50. 8x - 5x - 5(4x + 5) = 9$$