

**8<sup>th</sup> Grade Algebra****Summer Assignment**

The following summer assignment is to be used as a study tool to prepare you for the skills necessary for success in Algebra 1 Honors (for incoming 8<sup>th</sup> grade students). **This is due, and will be checked, on the first day of school.** The following skills have been taught in the 6<sup>th</sup> and 7<sup>th</sup> grade pinnacle program and will be assessed as your first test grade. The first test will be given within the first few weeks of school. **Do not use a calculator**, as you will not be permitted to use one on the test. Links to online videos have been provided for certain skills in case you need to use them as a reference. You can also use resources such as Khan Academy if you are struggling with any of the concepts included in this assignment. Show all work on this page including your final answer. In addition, place your final answers on the answer sheet attached.

**Section I: Basic Math Facts**

Solve the following basic math operations.

If your answer is a fraction, leave your answer in simplified improper fraction form. **Do not convert to a decimal or mixed number.**

1. $-\frac{1}{6} + \frac{7}{12}$	2. $2\frac{3}{5} \cdot (-\frac{4}{3})$	3. $\frac{4}{15} + \frac{5}{9}$
4. $-\frac{7}{8} \div \frac{3}{4}$	5. $\frac{13}{18} \cdot \frac{9}{25}$	6. $-\frac{7}{12} - \frac{1}{8}$
7. $8.37(-5.3)$	8. $0.95 - 3.49$	9. $-24 \div 0$
10. $5\sqrt{4} - \sqrt{49}$	11. $-4\sqrt{100} + 10\sqrt{16}$	12. $(4 - 2)^3 - 2(3 + 1)$

13. $0 \div [15 + 3(6 \div 2) - 4^2]$	14. $\sqrt[3]{216}$	15. $3\sqrt[3]{125} + 4\sqrt[3]{64}$
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- You will be expected to know 1-15 squared and the square roots of perfect squares 1-225.
- You will also be expected to know 1-7 cubed and the cube roots of perfect cubes 1-343.
- There will be no review of integer operations. You will be expected to fluently add/subtract/multiply/divide positive and negative integers, fractions, and decimals

### Section II: Solving Multi-Step Equations in One Variable

Solve the following equations for the variable. Remember: Equations in one variable can have one solution, no solution, or an infinite number of solutions. Be sure to show all your work.

#### Video Resources for this Section:

[Number of Solutions to Equations](#)

[Solving Equations Involving Decimals](#) (use for questions 19 - 21)

[Solving Equations Involving Fractions & Proportions](#) (use for questions 17, 22, 24 - 28)

16. $-h + 4 = -h + 9$	17. $\frac{4}{3}w - 12 = \frac{2}{3}w$	18. $4(3q - 2) = 16q$
19. $0.7 + y = -1.34$	20. $n - 1.4 = -6.3$	21. $5.4x + 8.4 = 6.2x$
22. $\frac{4}{3} = \frac{8}{x}$	23. $t + 3t - 7 = 4t - 7$	24. $x + 2\frac{4}{5} = 3\frac{1}{6}$



<b>25.</b> $2d + \frac{1}{6} = 6(\frac{1}{3}d + 1)$	<b>26.</b> $\frac{1}{4}(n - 6) = \frac{1}{4}n - \frac{3}{2}$	<b>27.</b> $\frac{5}{6} = \frac{7n+9}{9}$
<b>28.</b> $\frac{5}{r-9} = \frac{8}{r+5}$	<b>29.</b> $-(-4x - 5) + 7 = 4(-x + 7)$	<b>30.</b> $2x - 8(x + 1) = 2(3x - 2) + 3x$

### Section III: Solving Multi-Step Inequalities in One Variable

Solve the inequality for the variable. Be sure to show all your work.

<b>31.</b> $4z - 3 \geq -1$	<b>32.</b> $6 > 3(t + 2)$
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Solve the inequality. Graph the solution.

<b>33.</b> $2 < -\frac{y}{5}$          	<b>34.</b> $3(x + 4) \geq 12$          
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## Section V: Writing and Solving Linear Equations in One Variable

Solve each of the following problems by writing and solving an algebraic equation.

**41.** Gretchen lives in Florida, where the current temperature is  $69^{\circ}\text{F}$  and rising at a rate of  $2^{\circ}\text{F}$  per hour. She is talking on the phone to her friend in Indiana where the temperature is now  $84^{\circ}\text{F}$  and falling at a rate of  $3^{\circ}\text{F}$  per hour.

**a.** If the temperatures continue changing at the same rates, how many hours would Gretchen and her friend have to talk before the temperatures become equal?

**b.** What would that temperature be?

**42.** You work at a carnival for 7.5 hours. You earn \$56.25.

**a.** Write an equation that can be used to determine how much money you make per hour.

**b.** Solve the equation you wrote in Part a to determine your hourly rate.

**43.** All 331 eighth grade students from Dover Middle School went on a field trip. Six buses were filled and 7 students traveled in cars. How many students were in each bus?

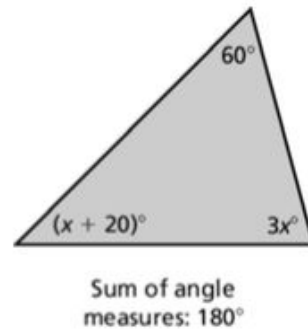
**a.** Write an equation that can be used to determine how many students traveled on each bus.

**b.** Solve the equation you wrote in Part a to determine the number of students that traveled on each bus.

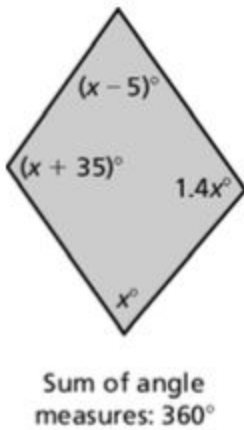
44. Write and solve an equation to find the value of  $x$ . Then, find the perimeter of the square.



45. Write and solve an equation to find the value of  $x$ . Then, find the angle measures of the polygon.



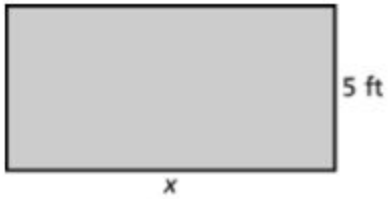
46. Write and solve an equation to find the value of  $x$ . Then, find the angle measures of the polygon.



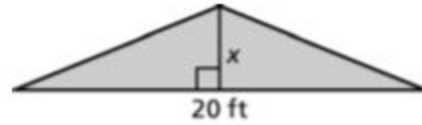
### Section VI: Writing and Solving Linear Inequalities in One Variable

Solve each of the following problems by writing and solving an algebraic inequality.

47. The perimeter is more than 15 feet. Solve for  $x$ .



48. The area is no more than 40 square feet. Solve for  $x$ .

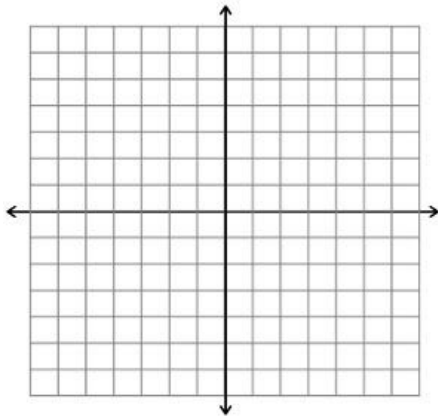


### Section VII: Graphing Linear Equations by Making a Table of Values

Complete the table for each linear equation. Plot the solution points and draw a line exactly through the points. Identify a different solution point that would be on the line that is not part of the table you created.

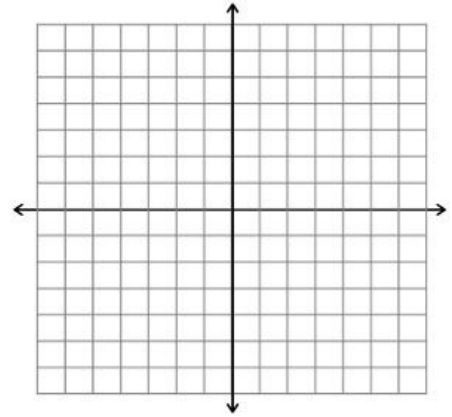
49.  $y = \frac{1}{2}x$

x	y
-4	
-2	
0	
2	
4	



50.  $y = x + 3$

x	y
-2	
-1	
0	
1	
2	



# 8<sup>th</sup> Grade Algebra

## Summer Assignment – Answer Sheet

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

6. \_\_\_\_\_

7. \_\_\_\_\_

8. \_\_\_\_\_

9. \_\_\_\_\_

10. \_\_\_\_\_

11. \_\_\_\_\_

12. \_\_\_\_\_

13. \_\_\_\_\_

14. \_\_\_\_\_

15. \_\_\_\_\_

16. \_\_\_\_\_

17. \_\_\_\_\_

18. \_\_\_\_\_

19. \_\_\_\_\_

20. \_\_\_\_\_

21. \_\_\_\_\_

22. \_\_\_\_\_

23. \_\_\_\_\_

24. \_\_\_\_\_

25. \_\_\_\_\_

26. \_\_\_\_\_

27. \_\_\_\_\_

28. \_\_\_\_\_

29. \_\_\_\_\_

30. \_\_\_\_\_

31. \_\_\_\_\_

32. \_\_\_\_\_

33. \_\_\_\_\_



34. \_\_\_\_\_



35. \_\_\_\_\_

36. \_\_\_\_\_

37. \_\_\_\_\_

38. \_\_\_\_\_

39. \_\_\_\_\_

40. a) \_\_\_\_\_

b) \_\_\_\_\_

41. a) \_\_\_\_\_

b) \_\_\_\_\_

42. a) \_\_\_\_\_

b) \_\_\_\_\_

43. a) \_\_\_\_\_

b) \_\_\_\_\_

44. Equation:

\_\_\_\_\_

x = \_\_\_\_\_

Perimeter: \_\_\_\_\_

45. Equation:

\_\_\_\_\_

x = \_\_\_\_\_

Interior Angles:

\_\_\_\_\_



46. Equation:

\_\_\_\_\_

x = \_\_\_\_\_

Interior Angles:

\_\_\_\_\_

47. Inequality:

\_\_\_\_\_

Solution Set:

\_\_\_\_\_

48. Inequality:

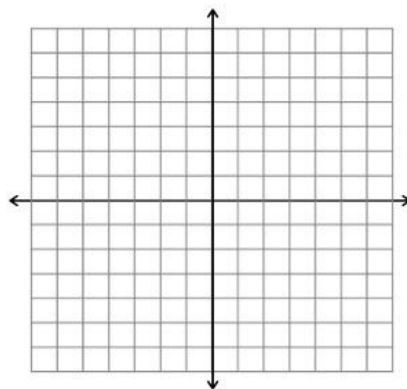
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Solution Set:

\_\_\_\_\_

49.

x	y
-4	
-2	
0	
2	
4	



50.

x	y
-2	
-1	
0	
1	
2	

