



SOUTHINGTON HIGH SCHOOL

Richard Aroian, Principal

Assistant Principals: Leah Clark, Simone Crouch, Thomas Hinman, Kathleen Reynolds

Dear Students,

Attached to this letter you will find a comprehensive set of problems that reflect critical math skills that should be mastered prior to entering your Algebra 1 class at Southington High School. You are encouraged to utilize a wide range of methods for finding the correct answer, including techniques both with and without the aid of a calculator*. Working with a friend, sibling, or parent might be a helpful way to complete this assignment! Also watching videos on Khan Academy is encouraged. You can access Khan Academy by going to <https://www.khanacademy.org/>

On the first or second day of the course your teachers will check your packets for completion and review how to solve some of the problems that are most important to beginning your first unit of the year. To receive full credit for completing the assignment you must attempt each problem and show all work used to complete it. Soon thereafter, you will be given a brief assessment on these skills to measure your progress and readiness for the course. Please note: the work and answers to the odd questions are in this packet. They are provided as a means to assess your work as you go.

Our goal is for you to have a successful and enjoyable transition into your Algebra 1 class at Southington High School and this packet is meant to help facilitate this process. Our absolute hope is that you try your best and remember that your teachers are prepared to help you with any challenges you faced when you return in late August.

Sincerely,

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*Reminder: A calculator is an important tool used within this course. Students are strongly encouraged to obtain one for their personal use. Copies of this packet may be found on the Southington High School Website. Go to www.southingtonschools.org and click on the link to Parent Resources

SHOW ALL WORK

Find the sum, difference, product or quotient of the integers **WITHOUT** a calculator.

1. $5 - 7 =$

2. $-5 + 7 =$

3. $-5 - 7 =$

4. $5 + (-7) =$

5. $-8 - 2 =$

6. $-6 - (-3) =$

7. $-5 + 5 =$

8. $10 - 12 =$

9. $-5 \bullet 7 =$

10. $(-4)(-6) =$

11. $\frac{-16}{-2} =$

12. $14 \div (-7) =$

13. $1 - 2 + 3 =$

14. $-4 + 5 - (-6) =$

15. $7 + (-8) - 9 =$

16. $(1) \bullet (-2) \bullet (3) =$

17. $(-4)(5)(-6) =$

18. $(-7)(-8)(-9) =$

Use order of operations (**PEMDAS**) to simplify the following expressions. Show all steps.

19. $-4(5^2 - 32 \div 8) =$

20. $\frac{48 - 16 \div 2^3}{3 + 5 \bullet 4} =$

Simplify the following expressions. Pay close attention to **combining like terms** (CLT).

21. $7x + 6 + 12x - 4 =$

22. $9h - 12y - 10h + 11y =$

23. $5x + 6y - 12 =$

24. $7x^2 + 12x + 3x^2 + 5x =$

Use the **distributive property** to simplify the following expressions.

25. $7(x + 4) =$

26. $5(2x - 6) =$

27. $-3(4x - 5) =$

Calculate the **mean, median, mode and range** of the following data sets. You may use a calculator.

28. 4, 4, 4, 6, 7, 8, 10, 12, 15, 20

29. 5, 23, 12, 5, 9, 18, 12, 4, 10, 21, 8, 25, 13

Solve the following equations.

30. $x + 15 = 3$

31. $-7w = 35$

32. $\frac{p}{3} = -10$

33. $4x - 12 = 10$

34. $9 + 4y = -11$

35. $-5a - 9 = -9$

36. $0 = 2x + 10$

37. $2(x - 3) = -11$

38. $5y + 6 = 3y + 12$

Evaluate the following expressions with the given value (substitute and simplify).

39. $4x + 10$, when $x = -3$

40. $-x + 2$, when $x = -8$

41. $\frac{x}{2} - 7 + 3x$, when $x = 6$

Given the following equations, identify the **slope** and the **y-intercept**.

42. $y = \frac{1}{2}x - 5$

43. $y = x + 2$

44. $y = 7 - 2x$

Find the **slope** between the following two points.

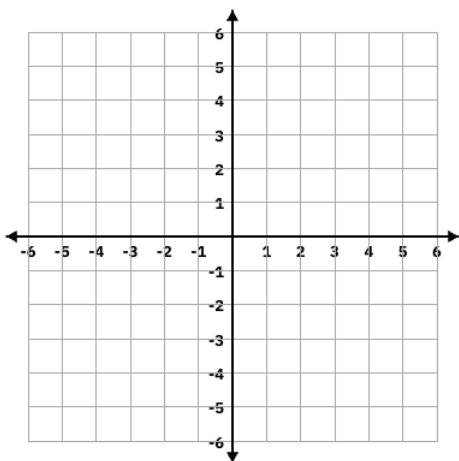
45. $(3, 5)$ and $(4, 7)$

46. $(-3, 5)$ and $(-7, 7)$

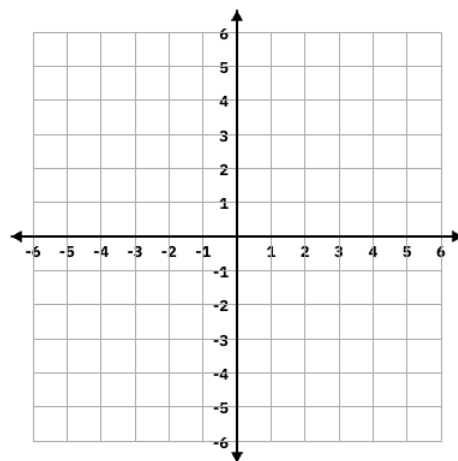
47. $(1, 8)$ and $(5, 8)$

Graph the following equations.

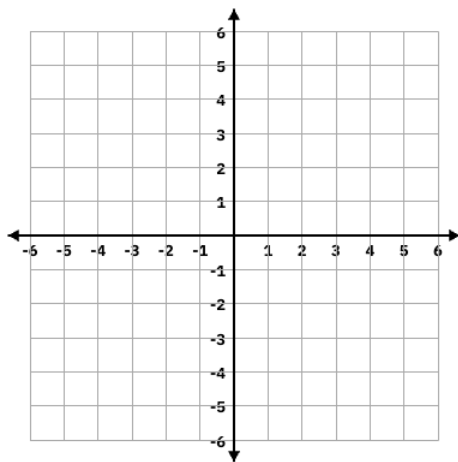
48. $y = 3x - 2$



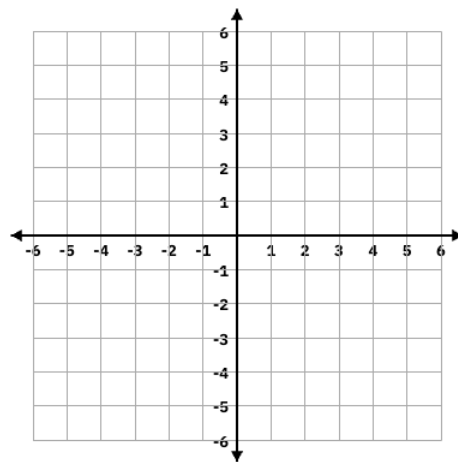
49. $y = -\frac{2}{3}x + 3$



50. $y = x + 1$

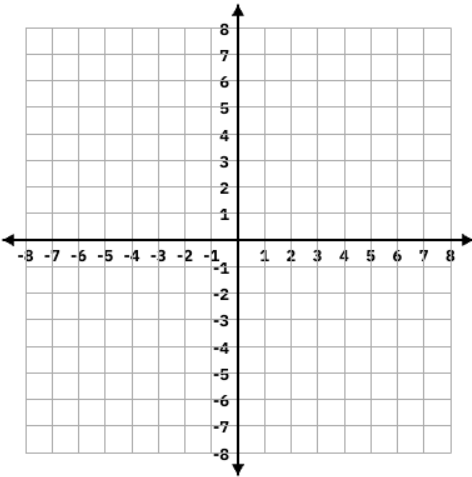


51. $y = -4x$

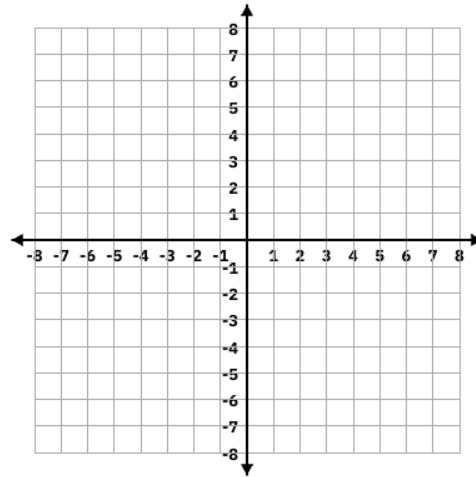


Graph the following equations by converting to slope-intercept form.

52. $3x + y = -1$

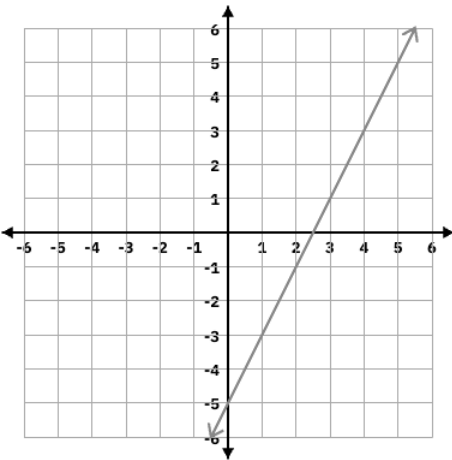


53. $-4x + 2y = 8$

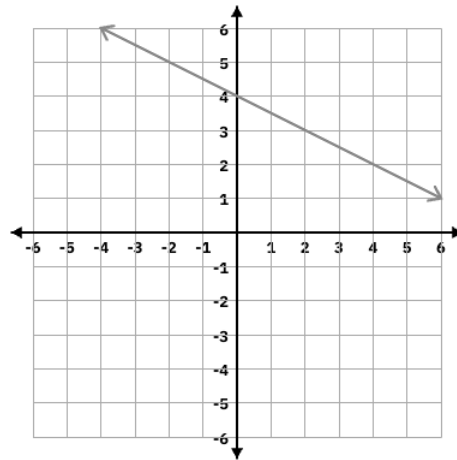


Write the equation of the lines in slope-intercept form.

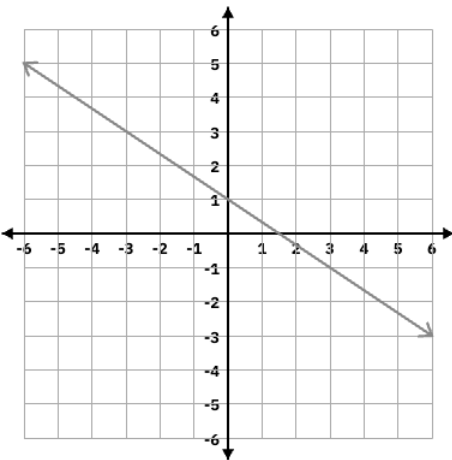
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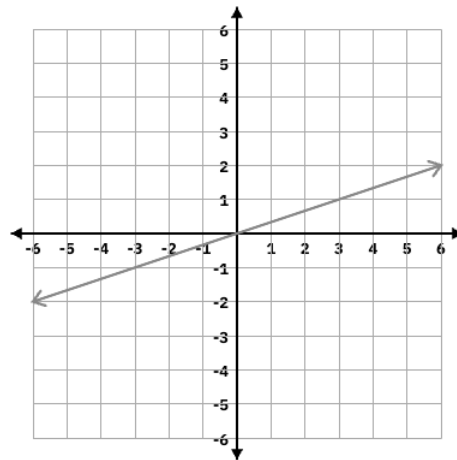
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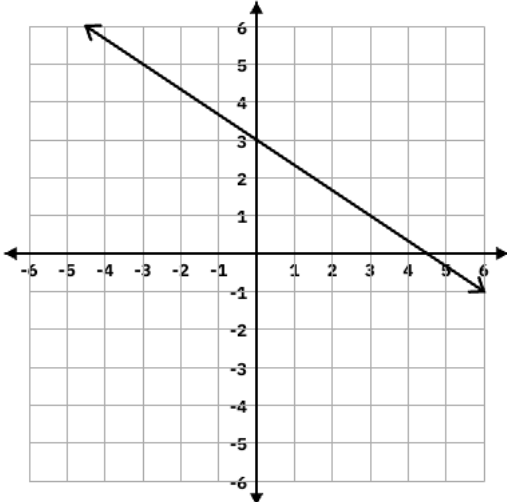
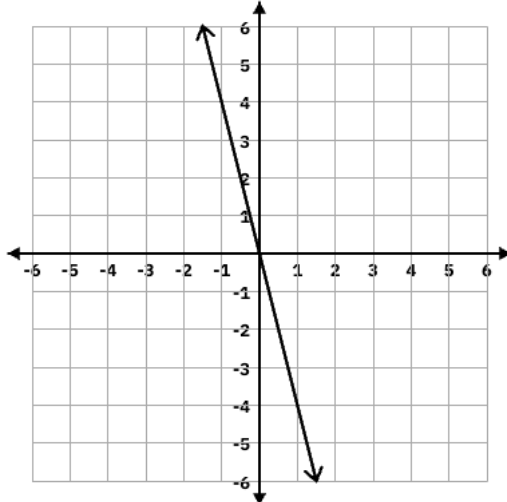
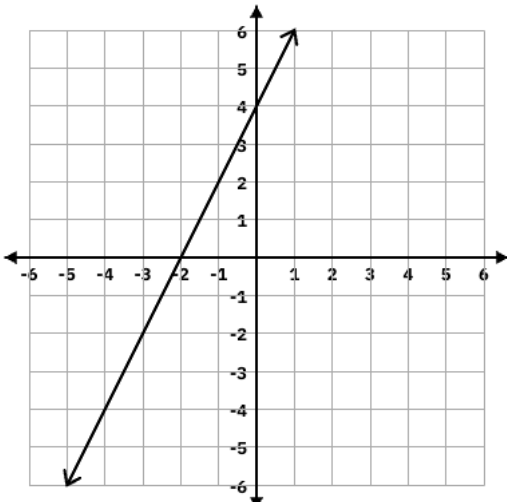
56.



57.



Answer Key: [odds only]

1) -2	3) -12	5) -10	7) 0	9) -35	11) 8
13) 2	15) -10	17) -120	19) -84	21) $19x + 2$	23) $5x + 6y - 12$
25) $7x + 28$	27) $-12x + 15$	29) Mean: 12.7 Median: 12 Mode: 5 & 12 Range: 21	31) $w = -5$	33) $x = 5.5$	35) $a = 0$
37) $x = -2.5$	39) -2	41) 14	43) Slope is 1 y-intercept: $(0, 2)$	45) $m = 2$	47) $m = 0$
49) 	51) 				
53) 	55) $y = -\frac{1}{2}x + 4$				
			57) $y = \frac{1}{3}x$		