

Summer Geometry Packet

This packet should help to prepare you for Geometry at Trumbull High School. Please complete these problems before the first day of school.

For examples #1-14, simplify each expression.

1. $3x^2 + xy - 6y^2$ when $x = -4$ and $y = \frac{1}{2}$

2. $[2^3 + 4(7 - 3)] \div 8$

3. $-3 |6 - 12|$

4. $\frac{(-5)(-2) - 4}{-4\left(\frac{1}{3}\right)}$

5. $\frac{-(-5) + \sqrt{5^2 - 4(1)(-6)}}{2(1)}$

6. $\frac{\frac{4}{5}}{2 - \frac{1}{3}}$

7. $2(7g - 4h) - 6(5h - 3g)$

8. $(2y - 3)(y + 7)$

9. $6x^2(3x^3 - 4x + 4)$

10. $(-3x^3y^2)^3$

11. $(3x + 5)(2x - 4)$

12. $(2x - 5)^2$

13. $(-x^2y)^3(2x^3y^2)^2$

14. $\frac{14x^2 + 42x - 7}{7}$

#15-24 Solve for the variable.

15. $5(3z - 7) = 4(2z + 7)$

16. $5 - 3(2n - 3) = 44$

$$17. \frac{1}{3}(2x - 4) + 5 = -\frac{2}{3}(x + 1)$$

$$18. y^2 - 9 = 0$$

$$19. w^2 + 3w = 10$$

$$20. 3v^2 = v + 10$$

$$21. 5 - 3x < 29$$

$$22. \frac{5}{x} = \frac{3}{2}$$

$$23. \frac{-4}{2r-9} = \frac{-16}{3r+14}$$

$$24. \frac{x}{x+5} = \frac{x-4}{x}$$

Find the ratio of a:b

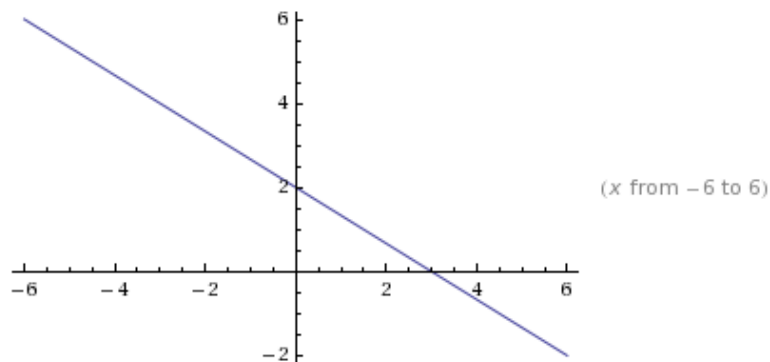
$$25. \frac{3a-2b}{6} = \frac{a+b}{5}$$

Solve each system of equations.

$$26. \begin{aligned} y &= x - 3 \\ x + y &= 13 \end{aligned}$$

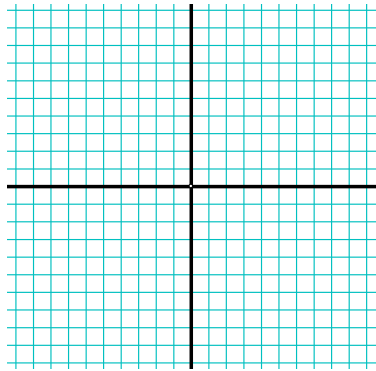
$$27. \begin{aligned} 4(e + f) &= 8(f - 4) \\ 2(e - 1) &= f - 15 \end{aligned}$$

28. Write the equation of the line shown.

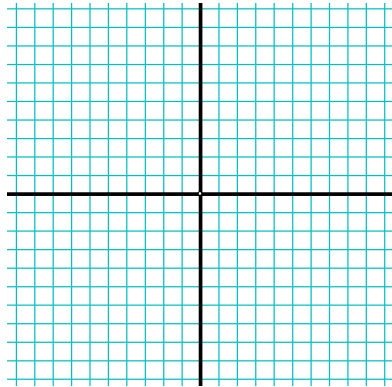


Find the slope (m), the y-intercept (b) and the x-intercept of each linear equation. Then graph each equation.

29. $y = -\frac{1}{2}x + 6$



30. $3x - 2y = -10$



Use the given information to write the equation of a line in slope-intercept form.

31. $m = -\frac{1}{2}$ and $b = 8$

32. Goes through $(2, -5)$ with the slope of $\frac{3}{4}$.

33. Goes through the points $(7, 8)$ and $(-1, 4)$.

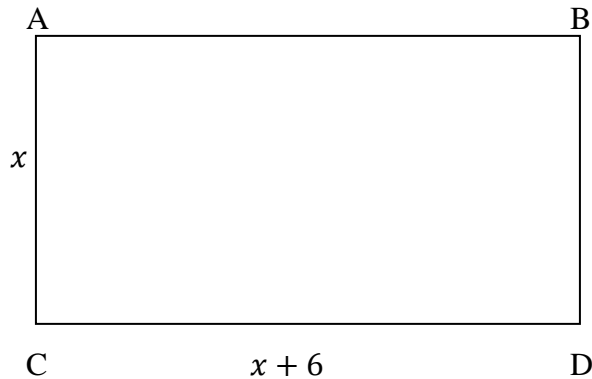
34. Parallel to $y = \frac{4}{5}x + 8$ with y-intercept 10.

35. Perpendicular to $y = \frac{4}{5}x + 8$, through the origin.

36. Use the distance formula $\sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$ to find the length of AB given A (2,6) and B(-2,4).

37. Find the midpoint of segment AB given A(2, 6) and B(-2, 4).

Use rectangle ABCD to answer examples #38 – 42.



38. Write the equation that shows the perimeter of the rectangle is 48 inches.

39. Solve for x .

40. Find the area of the rectangle.

41. Write an equation that shows the area of the rectangle is 72 square inches.

42. Find the dimensions of the rectangle.

In examples # 43 and 44, solve using one variable.

43. The sum of two numbers is 16. The greater of the two numbers is one more than four times the lesser number.

44. The width of a certain rectangle is 2 m greater than half its length. Four times its length is 26 m greater than its perimeter. What are the dimensions of the rectangle?

In examples # 45 and 46, write a system of two equations with two variables and solve each problem.

45. The difference between three times one number and a lesser one is 37. The sum of the greater number and twice the lesser number is 38. Find the numbers.

46. The length of a rectangular garden is three times the width. If the perimeter is 32m, what are the dimensions of the garden?