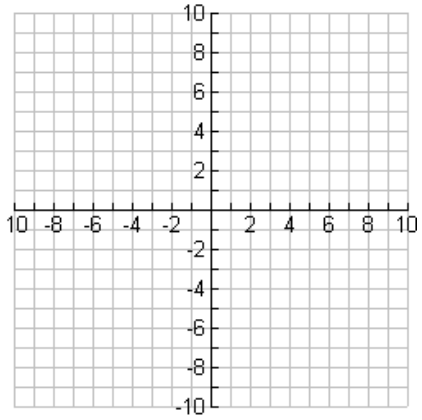
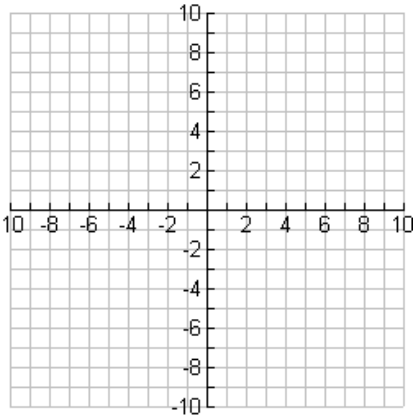
Geometry Summer Math Packet

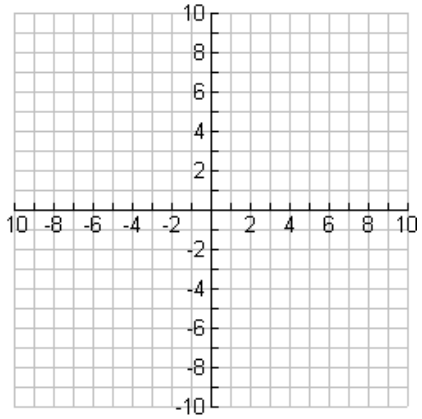
1. $2x + 4y = -3$



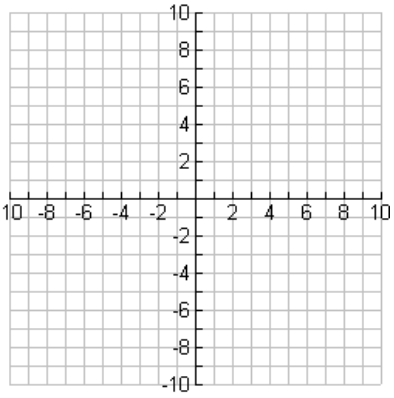
2. $-6y = 8 + 4x$



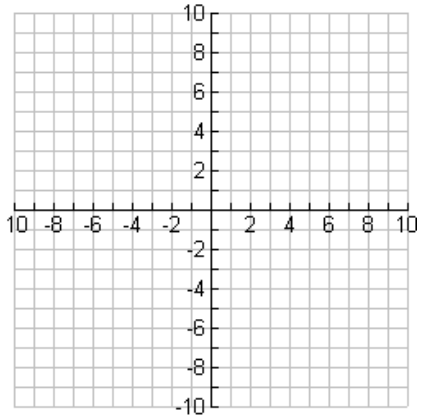
3. $y = \frac{3}{11}x + \frac{10}{11}$



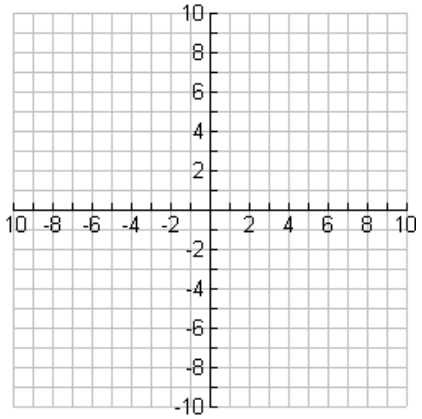
4. $5y = 8$



5. $x - y > 7$



6. $3x - y \geq 3$



Solve the following equations.

7. $24 = 31 - k$

8. $81 = n + 19 + 5$

9. $x + 12 = 4x - 9$

10. $\frac{z}{8} - 12 = 24$

11. $3(x - 4) = 15$

12. $3m + 7m - 2 = 12m + 19$

State whether the ratios are proportional. Write yes or no.

13. $\frac{48}{16}, \frac{11}{4}$

14. $\frac{1}{5}, \frac{3}{15}$

Solve each proportion

15. $\frac{15}{p} = \frac{20}{8}$

16. $\frac{4}{12} = \frac{v}{3}$

17. $\frac{w}{18} = \frac{2}{9}$

18. $\frac{280}{b} = \frac{490}{70}$

19. One group (A) contains 175 people. One-fifth of the people in group A will be selected to win free tickets to a concert. There is another group (B) in a nearby town that will receive the same number of tickets, but there are 585 people in that group. What will be the ratio of non-winners in group A to non-winners in group B after the selections are made?

20. The local election is over and a new mayor has been elected to lead Big Town. The new mayor received three votes for every vote received by her opponent. The new mayor received 2,058 votes. How many votes did her opponent receive?

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Write the slope of the line passing through the two points.

21. (-1, 7) & (1, 5)

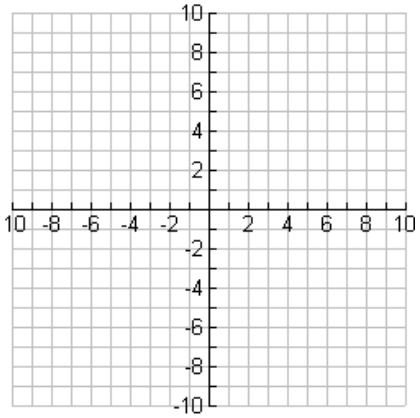
22. (2, 2) & (6, 8)

23. (-34, -41) & (-26, 42)

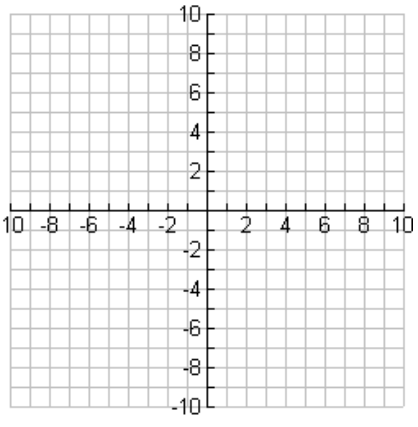
24. (-7, 8) & (-4, -3)

Graph each line.

25. A line that passes through the point (0, 3). The line is parallel to another line whose slope is $\frac{-6}{5}$.



26. A line passes through the point (4, 0). Slope = ½



Simplify.

27. $34 + 36 \div 9 \times 20$

28. $66 \div (9 + 2) + 33 - 20 \div 10$

29. $(28 - 21 \div 7) \times (43 + 12 - 31)$

30. $(132 \div 11 + 2) - (17 \div 1 - 16)$

Translate the given statement into an equation and then solve.

31. 7 more than 2 times a number is 13

32. six times the sum of a number and 4 is 42

33. The sum of a number and eleven times the same number is 84.

34. One-sixth of a number is 66.

35. The sum of 10 and the product of 4 and a number is 22.

Simplify

36. $\sqrt{\frac{9}{25}}$

37. $6\sqrt{\frac{36}{196}}$

38. $12\left(\sqrt{225}\right)^2$

39. $\left(3\sqrt{36}\right)\left(-3\sqrt{49}\right)$

40. $\frac{2}{3}\sqrt{36} - \frac{3}{4}\sqrt{144}$

41. $\sqrt{847}\left(-12\sqrt{288}\right)$

Multiply.

42. (12x) (12x + 11)

43. -9x ($-3x^2$ + 9x + 11)

44. (8x + 11) (5x + 11)

45. (-14x + 11) (-9x + 19)

Fill in the missing numbers.

46. ____ ÷ ____ + ____ - ____ = 17
Use the numbers: 18, 44, 2, and 52

47. (___ - ___) x ___ (___ - ___) = 11,880
Use the numbers: 55, 13, 38, 2, and 7

48. ___ + ___ - ___ - (___ ÷ ___) = 73
Use the numbers: 8, 24, 72, 30, and 40

49. (___ + ___) + (___ - ___) = 73
Use the numbers: 1, 71, 3, and 25

Solve the equation. Write answer in simplest form.

50. $d + 13 = 13\frac{1}{16}$

51. $\frac{1}{2} + \frac{5}{6} = k + \frac{1}{3}$

52. $8n = 55\frac{1}{3}$

53. $\frac{6j}{8} = \frac{3}{10}$

Plot the following points on the coordinate grid.

54. A (0, -8)

55. B (-5, 0)

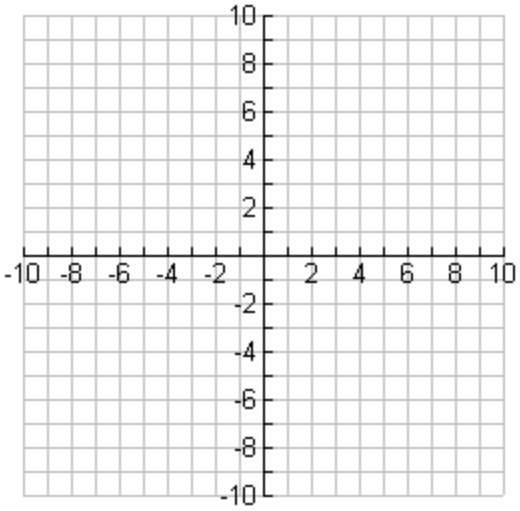
56. C (3, 10)

57. D (6, -7)

58. E (-1, 9)

59. F (-2, -5)

60. G (4, 1)



Problem Solving

1. Brandon's back yard is in the shape of a rectangle. The length is 50 feet and the width is 30 feet. What is the perimeter? What is the area? If you put up a fence and each section is 8 feet long, how many sections would you need and how many posts?

2. Tim is putting in a circular garden in front of his house. He needs to put a low fence around it. He also needs to get mulch. If the circle has a diameter of 12 feet, how much fencing would he need? It comes in rolls of 10 feet. How many rolls will he need? Each bag of mulch covers 3 square feet. How many bags of mulch does he need?

3. Syreeta is having a party. She needs to buy ice cream. She knows that each person needs 2 scoops. The ice cream package is in the shape of a rectangular prism. The length is 12 inches, the height is 5 inches, and the width is 8 inches. What is the volume? If each scoop is around 12 cubic inches, how many scoops can I get out of a package?

4. Courtney is making 72 cookies. She will make rectangles and cut them into triangles. Each rectangle will be 2 inches by 4 inches. What is the area of each cookie? If she wants to put icing on them, how many cans will she need if each can will cover 48 square inches?

5. Terry is selling plants from her garden. Buy 3/$4.50 and get one free. Mrs. Greenthumb wants 20 plants; how much will she pay? How many plants would you get for $27?

6. Heather and Holly were eating their lunch. First, 18 seagulls swooped down but 11 flew away. Then 12 more came and 2 flew away. Finally, 14 came to visit and 8 of those stayed. At this point, how many gulls were still on the beach?

7. Tim and his dad build a sandcastle. They start at 10:30AM and build for 2 hours and 15 minutes. What time are they finished? High tide comes in at 3:35 and washes their castle away. How long was the completed castle standing? Give the time in hours and minutes.

8. Umbrellas rent for $3 a day. The Jacksons will be at the shore for 2 weeks. Should they buy an umbrella for $34.95 or rent one everyday? Justify your answer.

10 most important mathematical concepts/skills that students should know and be able to do before entering Geometry

Students entering a Geometry class in the Brooklyn City Schools are expected to know and be able to demonstrate competency with the mathematical concepts and skills listed below. These concepts and skills serve as the foundation for what will be taught in Geometry.

Equations: Solve and graph two-step linear equations and inequalities, and equations and inequalities with variables on both sides.
Ratio: Understand the meaning and use of ratio, rates and proportions.
Graphing: Accurately plot ordered pairs, and graph linear equations and inequalities on a coordinate plane.
Slope: Explain the meaning of slope as a constant rate of change, and understand how to find the slope of a line.
Order of operations: Understand and use the order of operations to simplify expressions and perform calculations (with rational numbers, decimals, integers, integer exponents and radicals).
Square roots: Understand the meaning of a square root, and use them in calculations.
Translating information: Translate information from problem situations or statements into equations and inequalities.
Properties: Understand the distributive property and how to use it to simplify expressions, solve equations and multiply binomials.
Integers: Demonstrate fluency in computing with integers (add, subtract, multiply, divide) and simplifying algebraic expressions involving integers.
Measurement: Correctly use a ruler (standard and metric) to obtain measurements to a specific degree of accuracy, and use a protractor to measure angles.

Helpful websites:
http://www.mathsisfun.com/

www.webmath.com