HONORS GEOMETRY SUMMER REVIEW 2026

Dear students,

To prepare you for next year's Honors Geometry class, the Math Department requires that you complete a summer review assignment. This review will refresh your skills and prepare you for our Honors Geometry course.

Solve each problem, **showing all your work**. You are expected to spend a minimum of 2 hours on this assignment, but it may require as many as 4 hours if you are not familiar with the material. ALL problems need to be done with all work shown, neat, and stapled. You may print out the summer review and complete the problems on the document itself, or complete the problems on binder paper. The completed assignment is due the first day of class. We will quickly review the assignment on that day, so bring any questions you may have to the first class. We will be having an assessment on this material in the second class, so I would encourage you to review your work the day before classes start to have it fresh in your mind if you completed the assignment early in the summer. All problems on this review should be material that you have already mastered. If there is anything that does not look familiar, please make sure you get the proper help during the summer.

A great resource to help you with any concepts you may be struggling with is Khan Academy.

If you have any questions, you may reach out to the Math Department Chair, Ms. Riley, at:
criley@moreaucatholic.org

See you in August!

Name: _____

SIMPLIFYING EXPRESSIONS AND SOLVING EQUATIONS

Simplify.

1) $4x+3y-(2x+6y)$

2) $4-3(4x-5)$

3) $-(x-3x+9)$

Solve and check each equation. NOTE: you may get none or infinitely many solutions.

4) $x+10=-22$

5) $4-2x=16$

6) $3-x=2x-9$

7) $2x+7+3x=-8$

8) $3(x-7)=-4(x+1)$

9) $2(x+2)-2(x-6)=16$

SOLVING AND GRAPHING INEQUALITIES

Solve each inequality and graph the solution.

10) $2x-3<5$

11) $2x\geq 5x+6$

SOLVING ABSOLUTE VALUE EQUATIONS AND INEQUALITIES

Solve each equation. Check your answer(s).

12) $|2x+3|=15$

13) $|3x-12|-6=9$

LINEAR EQUATIONS

Find the slope of the line through each pair of points.

14) (2, 3) and (1, −2)

15) (−5, 6) and (−1, 12)

16) (4, 1) and (4, −1)

Write the equation of the line in slope-intercept form given the slope and the point on the line.

17) slope = 2; (−2, 8)

18) slope = $\frac{2}{3}$; (6, 1)

19) slope = −5; (0, 9)

Write the equation of the line in slope-intercept form that passes through each pair of points.

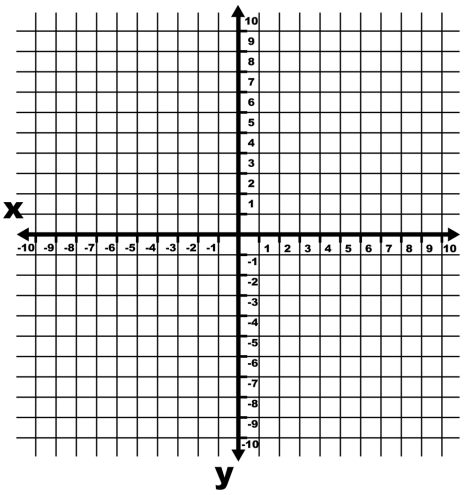
20) (3, 7) and (5, 11)

21) (−6, 7) and (−9, 8)

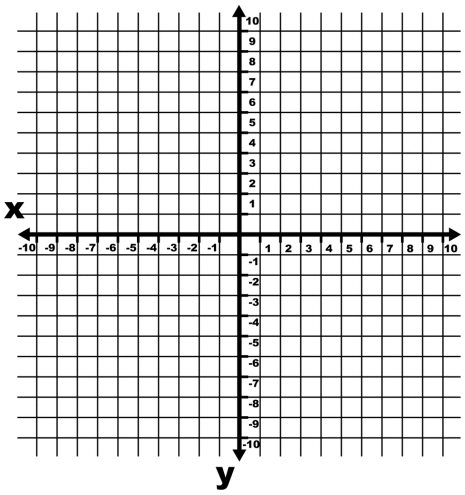
22) (−3, 6) and (15, −6)

Graph each line.

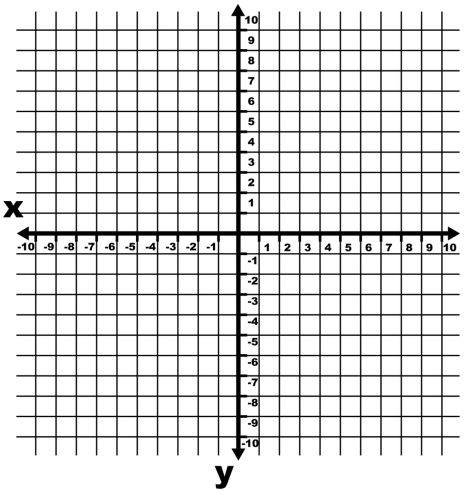
23) $y = x - 4$



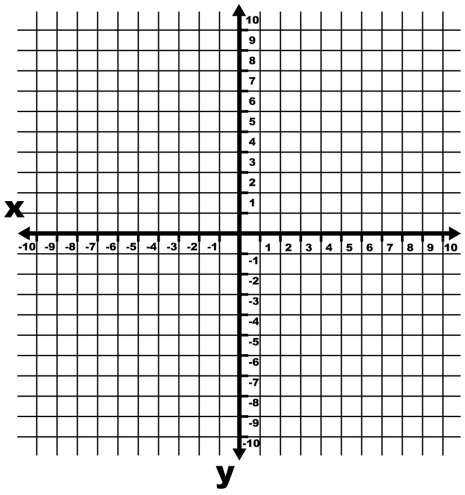
24) $y = -2x + 1$



25) $-2y = x - 6$



26) $6x - 3y = 10$



Write the equation of the line that is parallel to the given line and has the following information.

27) $y = 2x + 3$ and passes through (1, 9)

28) $y = -\frac{3}{4}x + 1$ and passes through (8, −1)

Solve each word problem.

29) Jeff bought flowers for his mom. He bought 24 flowers that were a combination of roses and tulips. The roses cost $3.00 each and the tulips cost $1.25 each. He spent $58.00. How many of each flower did he buy?

30) Lily is building a square sandbox for her son and wants the length to be twice as long as the width. If she has 24 ft of wood to build her sandbox, what will the dimensions be (length and width)?

31) The sum of two numbers is 19, and their difference is 55. What are the two numbers?

32) There were 155 people at the basketball game. Tickets for the game are $2.50 for students and $4 for adults. If the total money received for admission was $492.50, how many students and adults attended the game?

33) Jocelyn has $1.95 in her pocket made up of 27 nickels and dimes. How many of each type of coin does she have?

FACTORING POLYNOMIALS

Factor each polynomial completely.

34) $x^2 + 3x - 54$

35) $x^2 - 6x - 112$

36) $2x^2 - 5x - 3$

37) $3x^2 - 9x - 12$

38) $x^3 + 16x^2 + 64x$

39) $x^2 - 49$

SOLVING QUADRATIC EQUATIONS BY FACTORING

Solve each equation by factoring and using the zero-product property.

40) $6x^2 + x = 7$

41) $x^2 - 36 = 0$

42) $8x^2 + 10x = -3$

SIMPLIFYING EXPRESSIONS BY DISTRIBUTING

Simplify each expression by distributing.

43) $-2(2x + 3y + 8)$

44) $3(2x - 4y)$

45) $(x + 7)(x - 1)$

46) $(2x+1)(3x-4)$

47) $(3x-7)(5x+2)$

SOLVING EQUATIONS BY CROSS MULTIPLICATION

Solve each equation by cross-multiplying.

48) $\frac{x}{7}=\frac{3}{2}$

49) $\frac{x+3}{8}=\frac{x-6}{4}$

50) $\frac{x-20}{3}=\frac{x-11}{18}$

51) $\frac{6}{x+16}=\frac{7}{3x+3}$

52) $\frac{5}{x-1}=\frac{x+5}{27}$

53) $\frac{2x+5}{6}=\frac{7}{x-6}$

Rationlize the denominator (with radicals)

Simplify each ratio in ***radical form***

54) $\frac{18}{\sqrt{3}}$

55) $\frac{26}{\sqrt{2}}$

56) $\frac{8\sqrt{8}}{\sqrt{7}}$

57) $\frac{2\sqrt{12}}{\sqrt{3}}$

Using the Quadratic Equation

Solve for x

58) $4x^2 + 5x - 6$

59) $9x^2 - 18x + 8$