ST. MARY'S DOMINICAN HIGH SCHOOL
Geometry and Geometry (Honors) Summer Worksheet

Dear Student:

Your progress in Geometry/Geometry (Honors) is dependent upon knowledge of certain Algebra concepts. In order to help you prepare for this course, solve the problems listed below, and check your answers with the attached answer key. Although no test will be given at the beginning of the school year, a grade will be given for completing this assignment. For additional practice, go to mathxlforschool.com or khanacademy.com.

In order to receive full credit for your work, be sure to follow these instructions.

1. Do all work IN PENCIL and on loose-leaf paper.
2. Copy each problem. **SHOW ALL REQUIRED WORK NEATLY AND IN A CLEAR MANNER**. Box your answer. Word problems should be answered in complete sentences.
3. Bring your completed assignment to school on the second day of class.

Your work will be collected, and a grade will be given based on **completeness and effort**. Try your best!!! If you need assistance, consult the video tutors from your Algebra I textbook available at pearsonsuccessnet.com.

Sincerely,

St. Mary's Dominican Mathematics Department

Solve the equation.

1. $37 - 18 + 8w = 67$
2. $3(y + 6) = 30$
3. $\frac{5p}{7} - 18 = -43$
4. $6(4.5y - 12) = 9$
5. $5x - 5 = 3x - 9$
6. $-6y + 14 + 4y = 32$

Solve the equation using the zero-product property.

7. $(2x + 2)(5x - 5) = 0$

Solve the equation by factoring.

8. $z^2 - 6z - 27 = 0$
9. $3z^2 + 3z - 6 = 0$
10. $15 = 8x^2 - 14x$

Simplify the radical expression.

11. $-4\sqrt{160}$
12. $\sqrt{144}$
13. $-3\sqrt{180h^4}$
14. $-2\sqrt{2p} \cdot 2\sqrt{22}$
15. $\sqrt{\frac{10}{81}}$
16. $\sqrt{\frac{400}{5}}$
17. $\sqrt{\frac{63x^{15}y^9}{7xy^{11}}}$

Simplify the radical expression by rationalizing the denominator.

18. $\frac{4}{\sqrt{21}}$

19. $\frac{4\sqrt{6}}{\sqrt{30}}$

Simplify the radical expression.

20. $3\sqrt{7}+5\sqrt{7}$

21. $\sqrt{45}-2\sqrt{5}$

22. $\sqrt{6}\left(7+3\sqrt{3}\right)$

23. $\left(5-\sqrt{2}\right)\left(3+\sqrt{8}\right)$

Find the slope and *y*-intercept of the line.

24. $y = \frac{4}{3}x - 3$

25. $14x + 4y = 24$

Write a linear equation in Slope-Intercept Form given the following pieces of information.

26. $m = 1$; $b = 4$

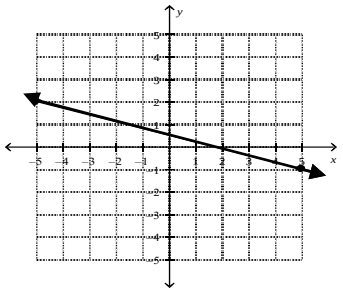
27. through (-6, -2) with a slope of $\frac{1}{3}$

28. through (5, -3) and parallel to $5x + y = 8$

29. through (-8, -4) and perpendicular to $y = 2x - 6$

Write the Slope-Intercept form of the equation for the line.

30.



31. **Graph the equations.**

a. $y = \frac{3}{4}x - 3$

b. $y = -1$

c. $x = -4$

d. $-3x - 2y = 6$

Multiply.

32. $(3x - 7)(3x - 5)$

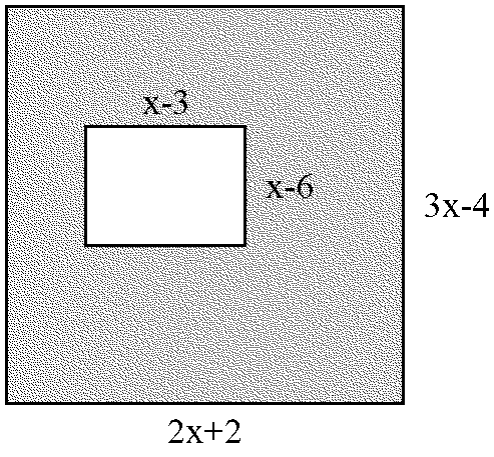
33. $(4x + 3)(2x + 5)$

34. $(5h - 5)(5h - 6)$

35. $(2x - 6)^2$

36. $(4x - 6y^3)^2$

37. **Find the area of the shaded region. Show all your work**.



38. **Explain the error in the student's work.** $3(x-5)=27$

$$3(x-5)+5=27+5$$
$$3x=33$$
$$\frac{3x}{3}=\frac{33}{3}$$
$$x=11$$

39. Why is it NOT possible to write the equation of the line through (–8, –5) and (–8, –9) in Slope-Intercept form?

40. **Solve the systems using substitution.**

a) $\begin{cases} y=x-7 \\ 2x+y=8 \end{cases}$ b) $\begin{cases} y=3x-10 \\ y=2x-5 \end{cases}$ c) $\begin{cases} 3x-4y=-5 \\ x-y=2 \end{cases}$

If you are enrolled in Geometry Honors, complete questions 41-42.

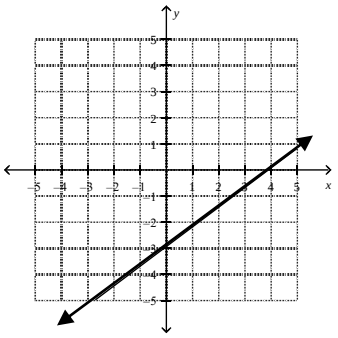
41. Find the circumference and area of a circle with a diameter of 12.

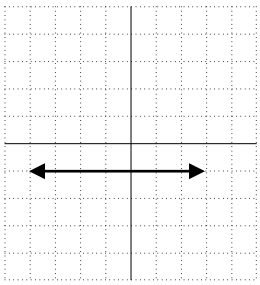
42. For A(15, -7) and B(-6, 9): a) Find the midpoint. b) Find the distance.

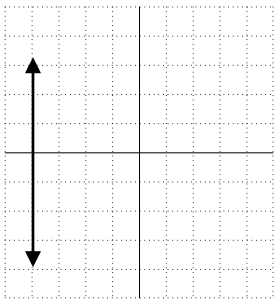
(Answers on next page).

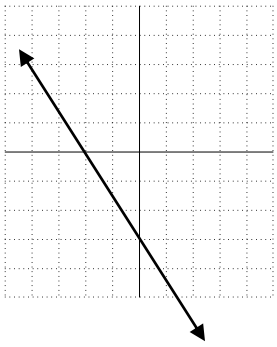
Answers:

1. 6
2. 4
3. -35
4. 3
5. -2
6. -9
7. x = -1 or x = 1
8. z = -3, z = 9
9. z = 1, z = -2
10. $-\frac{3}{4}, \frac{5}{2}$
11. $-16\sqrt{10}$
12. 12
13. $-18h^2\sqrt{5}$
14. $-8\sqrt{11p}$
15. $\frac{\sqrt{10}}{9}$
16. $4\sqrt{5}$
17. $\frac{3x^7}{y}$
18. $\frac{4\sqrt{21}}{21}$
19. $\frac{4\sqrt{5}}{5}$
20. $8\sqrt{7}$
21. $\sqrt{5}$
22. $7\sqrt{6}+9\sqrt{2}$
23. $11+7\sqrt{2}$
24. $m=\frac{4}{3};\ b=-3$
25. $m=\frac{-7}{2};\ b=6$
26. y = x + 4
27. $y=\frac{1}{3}x$
28. y = -5x + 22
29. $y=-\frac{1}{2}x-8$
30. $y=-\frac{3}{10}x+\frac{1}{2}$

31. a. 

b. 

c. 

d. 

32. $9x^2 - 36x + 35$

33. $8x^2+26x+15$

34. $25h^2 - 55h + 30$

35. $4x^2 - 24x + 36$

36. $16x^2 - 48xy^3 + 36y^6$

37. $5x^2 + 7x - 26$

38. The student forgot to use the Distributive Property

39. The line is a vertical line, so it has undefined slope.

40. a. (5, -2) b. (5, 5) c. (13, 11)

Geometry (Honors) only:

41. $C = 12\pi; \quad A = 36\pi$

42. $M: \left(\frac{9}{2}, 1\right); \quad D = \sqrt{697}$