Robbinsville School District
Honors Geometry Summer Assignment

Welcome to Honors Geometry! On the following pages you will find your summer assignment for the upcoming 2017-2018 school year. The summer assignment reviews algebraic and geometric material that you have learned in Algebra 1 and other previous courses. The packet is to be completed; it will be collected for a grade and is due on the **first day of school**.

To assist in your review and completion of this packet there are videos corresponding to each section of this packet. The videos are linked into this packet using QR codes that look like this: 
In order to view the videos, simply download a QR scanner to your phone, use the scanner to scan the code, and that will directly link you to each video.

Many of the links are from the website: www.showme.com/RHS-Math

If you find yourself still confused on certain topics, it is suggested that you search for the topic on one of the following websites:

- ShowMe http://www.showme.com
- Khan Academy: http://www.khanacademy.org/Math
- Math TV: http://www.mathtv.com

Directions: You must also show all work in the space provided to receive credit. Write your final answer on the line.

Part 1: Algebra 1 Skills

Solve. Keep all answers in exact form, where applicable.

1. $-3(x + 5) = 8x + 18$ 1._____

2. $4(8 - p) - (7 - p) = 22$ 2._____

3. $5(x - 4) - 1 = -7x + 3$ 3._____

4. $\frac{x+1}{-3} = \frac{x-4}{5}$ 4._____

5. $\frac{5}{x-1} = \frac{7}{x}$ 5._____

6. $x^2 - 16x + 64 = 0$ 6._____

7. $25y^2 - 49 = 0$ 7._____

8. $2x^2 = 9x + 5$ 8. _____

9. $16x^4 - 121x^2 = 0$ 9._____

10. $2x^4 - 12x^2 = 0$ 10._____

11. $3xy - 15y = 0$ 11._____

12. $3x^2 - 10x + 5 = 0$ 12._____

13. $2x^2 - 3x - 11 = 0$ 13._____

14. $-x^2-2x+2=0$ 14._____

Simplify.

15. $\left(2x^2+11xy-10\right)+\left(3x^2-4x+2\right)+\left(-x^2-y-4\right)$ 15._____

16. $\left(2x^2+5x-x^3+1\right)-\left(9x^2-8x-x^3+7\right)$ 16._____

17. $(4a+5c)(4a-5c)$ 17._____

18. $(w-2)^2$ 18._____

Solve each system. (Substitution method) (Elimination Method)

19. $y=-x+3$
$y=x-3$ 19._____

20. $2x - y = 5$
$4x - 2y = 10$

20._____

21. $x + y = 0$
$x + y = 2$

21._____

Graph the Functions.

22. $y = -3x + 5$

23. $y = \frac{3}{4}x - 2$

Find the Slope.

24. Find the slope of the line containing points (9, 4) and (5, 2)

24._____

25. Find the slope of the line containing points (-2, 3) and (8, -15) 25._____

26 – 30. Rationalize each denominator. When possible, simplify by reducing the resulting fraction.

26. $\frac{2}{\sqrt{3}}$ 26._____

27. $\frac{1}{\sqrt{7}}$ 27._____

28. $\frac{6}{\sqrt{2}}$ 28._____

29. $\frac{15}{\sqrt{5}}$ 29._____

30. $\frac{42}{\sqrt{7}}$ 30._____

For # 31 – 35, simplify.

31. $\sqrt{9}$ 31._____

32. $\sqrt{32}$ 32._____

33. $\sqrt{50}$ 33._____

34. $\sqrt{80}$ 34._____

35. $\sqrt{72}$ 35._____

Factor.

36. $3x^2 + 23x + 40$ 36._____

37. $4x^2 - 27x + 18$ 37._____

Solve by factoring.

38. $15x^2 - 12x - 36 = 0$ 38._____

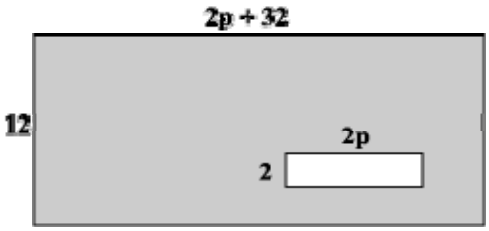
39. $2x^2 + 7x = 30$ 39._____

Part 2: Geometry Skills

Solve for the missing variable in each figure.

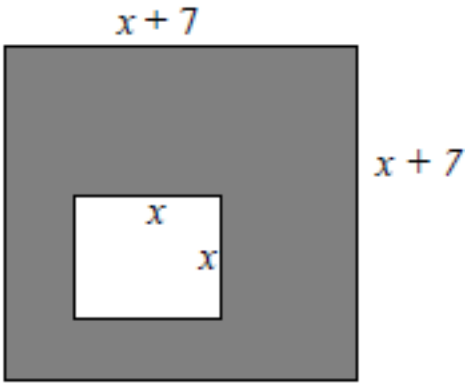
40. What is the simplified expression for the area of the shaded region in the larger of these two rectangles?

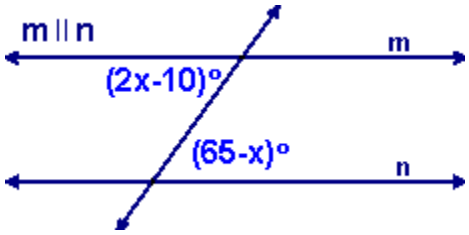
40._____



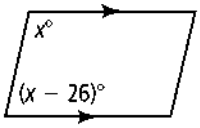
41. What is the simplified expression for the area of the shaded region in the larger of these two rectangles?

41._____



42. 

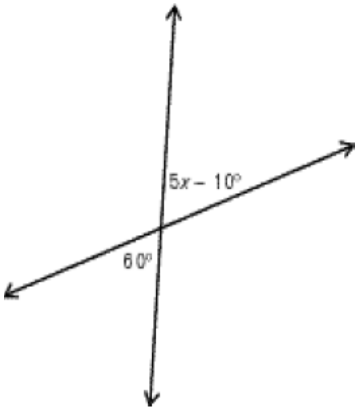
42._____

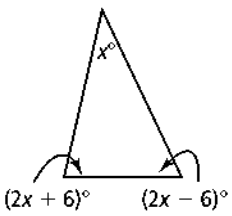
43. 

43._____

44.

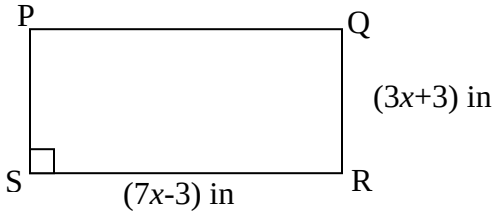
44._____



45. 

45._____

46. If the perimeter of rectangle PQRS is 40 inches. 46a._____
a) Find the value of *x*. 46b._____
b) Find the Area of the rectangle.



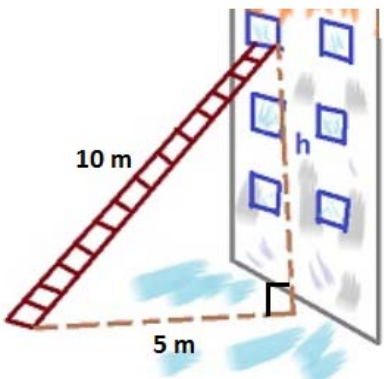
Solve each word problem. Keep answer in <u>simplest radical form</u>.

47. Joe Bean regularly takes a short cut across Mr. Wilson's lawn instead of walking on the sidewalk on his way home from school. Based on the picture below, how much distance is saved by Joe cutting across the lawn?

38._____

48. Skylar leans a 10m ladder against a building. If she is 5m away from the base of the building, what height does the ladder reach on the building?

39._____



49. Your new iPad is 7 inches tall and 6 inches long, what is the diagonal display of the iPad screen?

40._____

50. Given the figure below in which $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ intersect at point X and m∠5 = 90◦. Refer to angles by numbers in answering.

a) Name a pair of vertical angles.

b) Is ∠1 vertical to ∠2? Explain.

c) Name an angle adjacent to ∠2.

d) Are ∠3 and ∠5 supplementary?

e) Are ∠2 and ∠4 supplementary?

f) Explain why ∠3 and ∠1 are complementary.