Teacher: _____ Name: _____

Geometry 2019 Summer Packet

Directions: This packet is optional, but recommended. The topics come directly from the Pre-Algebra and Algebra I curriculums and should be familiar. Please take the time to answer each question thoughtfully and carefully. Include all work that is necessary and circle your final answer. If you are unsure how to answer a question, use your resources (Algebra I notes, Google, Khan Academy, etc.)

Part 1: Arithmetic Skills- Perform the operations below without a calculator. Write each answer in simplest form.

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

2. $2\frac{7}{8} + \frac{1}{4}$

3. $\frac{2}{5} \cdot \frac{25}{40}$

4. $2\frac{1}{3} \div \frac{7}{9}$

5. Evaluate $-6s^3 - 4t^2$, for s = 2 and t = - 3

Part 2: Algebraic Skills: Linear

A. Solving Linear Equations- Solve and check the equations below for the given variable.

6. 3(y - 5) = 12

7. 6(x - 4) + 5 =11

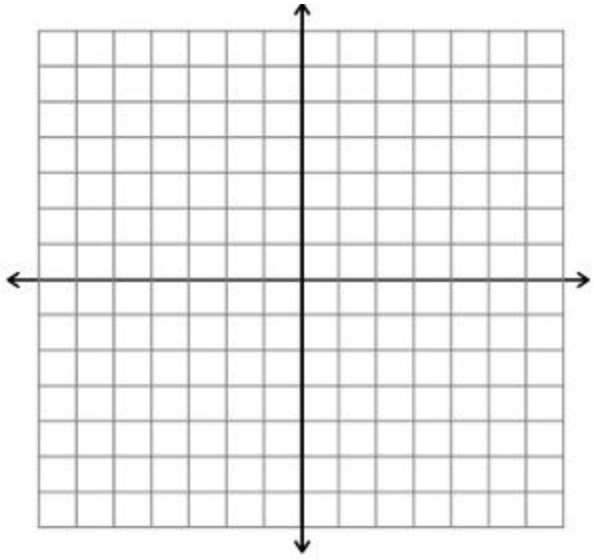
8. $\frac{1}{4}(28x - 8) = 7x - 2$

9. $\frac{2n-9}{2} = n$

B. Graphing Linear Equations

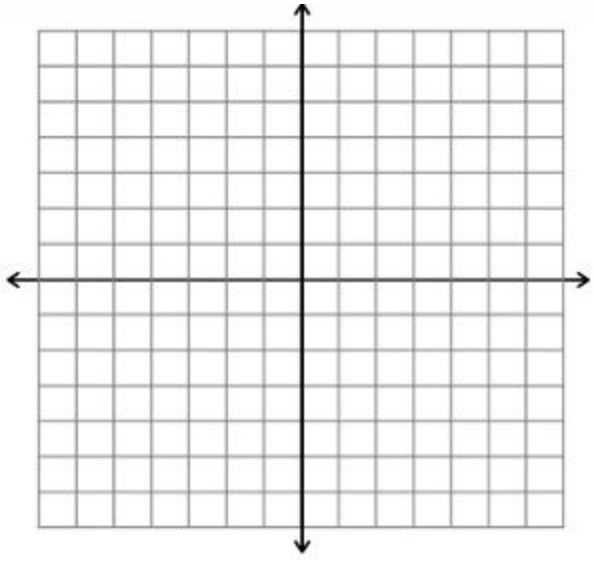
10. a. Write an equation in Slope-Intercept Form (y=mx+b) for a line that goes through the points (1,-2) and (5,6).

b. Graph the equation on the coordinate graph below.



11. a. Write an equation in Slope-Intercept Form that has a slope of $\frac{3}{2}$ and goes through the point (4,5).

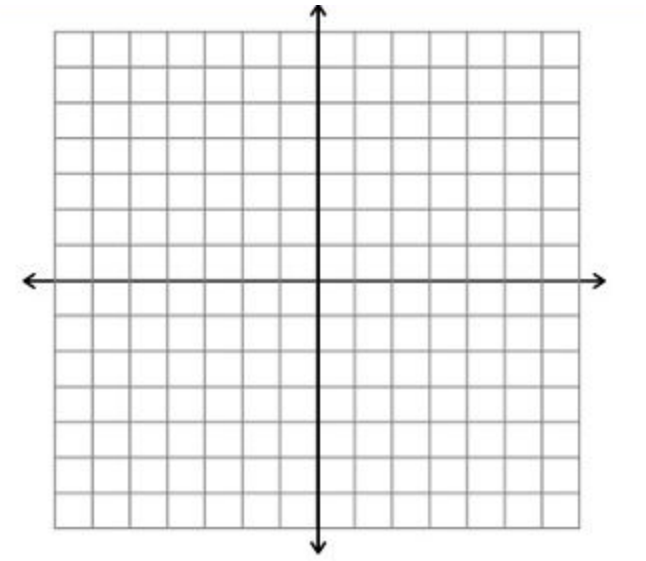
b. Graph the equation on the coordinate graph below.



12. a. Write an equation in Slope-Intercept Form that is <u>parallel</u> to the equation y =3x-4 and goes

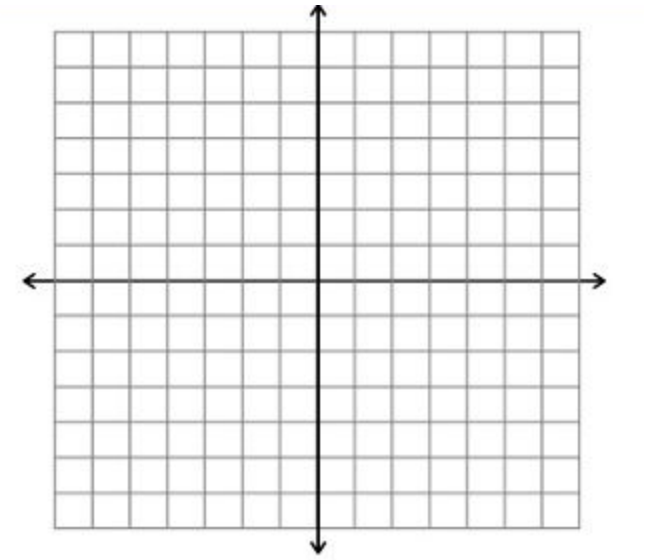
through the point (1,6).

b. Graph both equations on the coordinate graph below.



13. a. Write an equation in Slope-Intercept Form that is <u>perpendicular</u> to the equation y = -3x+1 and goes through the point (3,2).

b. Graph both equations on the coordinate graph below.



C. Solving Systems of Linear Equations- Solve each system for x and y using substitution or elimination.

14. $x - y = 11$
$y + 2x = 19$

15. $-4x - 15y = -17$
$-x + 5y = -13$

16. $-7x - 8y = 9$
$-4x + 9y = -22$

D. Solving Linear Inequalities- Solve, check and graph the inequalities on a number line.

17. $-2x + 6 \leq 10$

Solve: Check: Graph:

18. $3x + 2 \geq 5x - 6$

Solve: Check: Graph:

Part 3: Algebraic Skills: Quadratic

A. FOIL/Distributive Property

19. (a + 5)(a + 3)

20. (3x - 8)(x - 6)

21. (5x - 4)(5x + 4)

22. $(x + 6)^2$

23. $(y - 2)^2$

24. (3 - g)(2g + 3)

25. (3 - g)(g - 3)

26. 5x(x + 6)

27. 2y($y^2 + 3y - 4$)

28. $7 - 15(3x^3 - 5x) + 20x$

B. Factoring- Factor each expression. If the expression is not factorable, say so.

29. $x^2 + 6x + 5$

30. $x^2 + 3x - 40$

31. $x^2 - 13x + 22$

C. Solving Quadratic Equations- Solve each quadratic equation using either the Quadratic Formula or factoring. Round answers to the nearest tenth when necessary.

32. $x^2 - 4x - 12 = 0$

33. $x^2 - 11x + 28 = 0$

34. $2x^2 + 2x - 12 = 0$

35. $2x^2 - 7x - 13 = -10$

Part 4: Algebraic Skills: Radicals- Simplify all radicals. (No decimals and no radicals in the denominator!)

36. $\sqrt{125}$ 37. $\sqrt{216}$ 38. $\sqrt{512}$ 39. $\sqrt{80}$

40. $\sqrt{5} \cdot -4\sqrt{20}$ 41. $3\sqrt{12} \cdot \sqrt{6}$ 42. $\frac{\sqrt{6}}{\sqrt{27}}$ 43. $\frac{\sqrt{4}}{5\sqrt{3}}$

Part 5: Basic Geometry Knowledge

44. The length of a rectangle is 11 cm more than its width. The perimeter is 90 cm. Find the length and width of the rectangle. Show all work algebraically.

45. A rectangle has length of 10"and width of 4". Find its:
    a. Perimeter

    b. Area

46. A circle has a diameter of 8'. Leaving answers in terms of π, find its:
    a. Circumference

b. Area

47. A right triangle has legs of 9” and 12” :
    a. Sketch this figure.

    b. Find its perimeter.

    c. Find its area.

48. A square has an area of 169 square centimeters.
    a. How long is each side of the square?

    b. Find the perimeter of the square.