Algebra 2 Name: _____

Summer Assignment Date: _____ Block: _____

Robbinsville School District

Algebra 2 Summer Assignment

Welcome to Algebra 2! On the following pages you will find your summer assignment for the upcoming 2017-2018 school year. The summer assignment reviews material that you have learned in Algebra 1. The packet is to be completed and is **due on the first day of school**. It will be collected for a grade as it is pre-skill review material. To help you review and complete your packet there are videos corresponding to sections of the packet. These videos may be accessed on any web-connected device with any web browser. Each video shares the identical title to the corresponding section in the summer packet. Additionally QR codes are available within the packet, when scanned using a smartphone or tablet these codes will link directly to the corresponding video. The QR code below provides a link for the url listed above.

Algebra II
Summer Assignment

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Section 1: Factoring quadratic expressions with $a = 1$. Factor each completely.

1) $x^2 - 3x - 18$

2) $x^2 + 6x - 40$

3) $x^2 - 15x + 56$

4) $x^2 - 6x + 8$

5) $x^2 - 14x + 40$

6) $x^2 - 3x - 54$

Section 2: Factoring quadratic expressions with $a > 1$. Factor each completely.

7) $3x^2 + 4x + 4$

8) $3x^2 - 10x - 25$

9) $3x^2 - 7x - 10$

10) $3x^2 + 23x + 40$

11) $3x^2 - x - 2$

12) $4x^2 - 27x + 18$

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Section 3: Factoring quadratic expressions with Difference of Two Squares. Factor each completely.

13) $9x^2 - 16$

14) $4x^2 - 1$

15) $36x^2 - 25$

16) $49x^2 - 16$

Section 4: Factoring polynomial expressions with a Greatest Common Factor and a quadratic expression with $a = 1$. Factor each completely.

17) $3x^2 + 9x + 6$

18) $2x^2 - 16x + 14$

19) $3x^3 + 33x^2 + 54x$

20) $6x^4 - 6x^3 - 36x^2$

Section 5: Factoring polynomial expressions with a Greatest Common Factor and a quadratic expression with $a > 1$. Factor each completely.

21) $6x^2 + 32x - 70$

22) $15x^2 - 12x - 36$

23) $10x^3 - 44x^2 + 16x$

24) $15x^4 - 63x^3 - 162x^2$

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Section 6: Factoring polynomial expressions completely by grouping.

25) $49x^3 + 21x^2 + 35x + 15$

26) $xy^2 - x - 4y^2 + 4$

27) $48xy - 40x + 18y - 15$

28) $54x^3 - 45x^2 - 24x + 20$

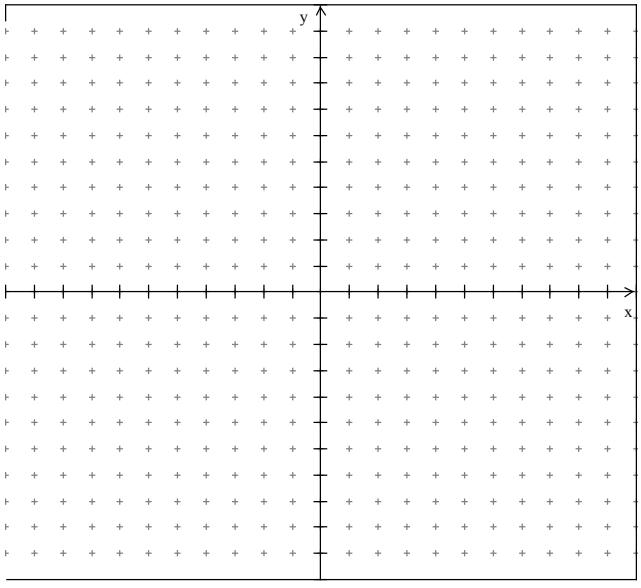
Section 7: Determine the slope, x intercept and y intercept given a Slope-Intercept Form equation and graph.

29) Equation: $y = -\frac{1}{2}x - 2$

Slope: _____

y-int: _____

x-int: _____



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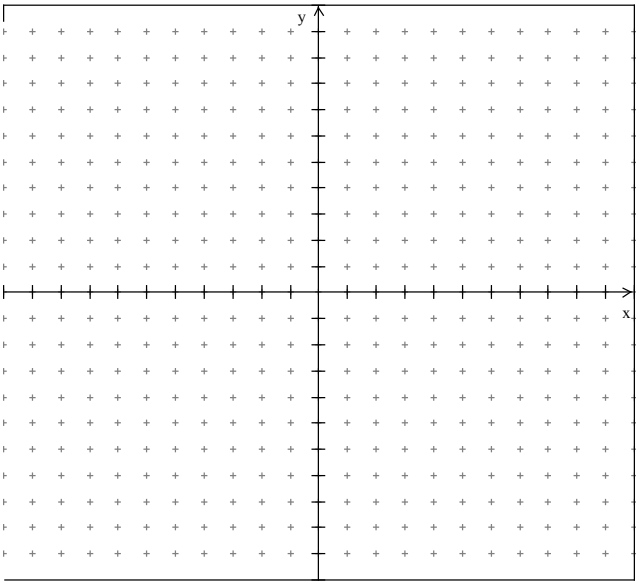
30) Equation: $y = 3x - 4$

Slope: _____

y-int: _____

x-int: _____

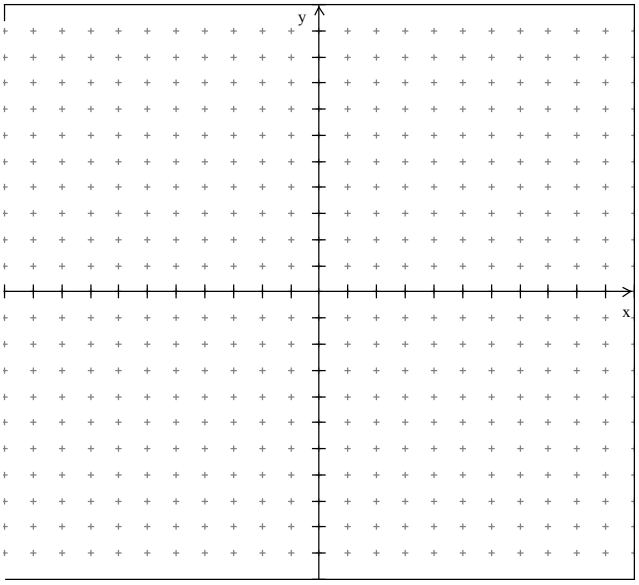


31) Equation: $y = 2$

Slope: _____

y-int: _____

x-int: _____



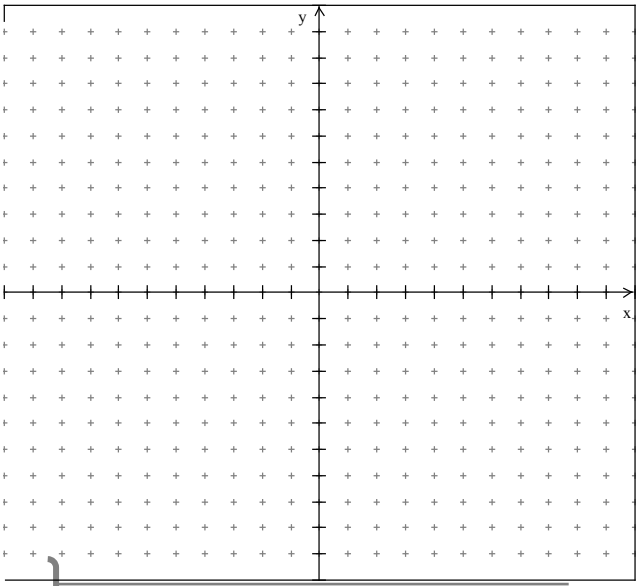
Section 8: Determine the Slope-Intercept Form equation, slope, x intercept and y intercept given two points and then graph.

32) Given: $(-1, 4)$ and $(0,1)$

Equation: _____

Slope: _____

y-int: _____



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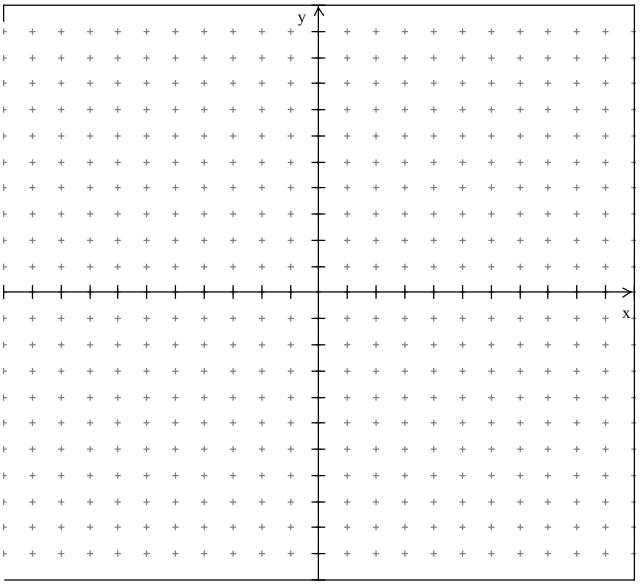
33) Given: $(1, 3)$ and $(4, -6)$

Equation: _____

Slope: _____

y-int: _____

x-int: _____



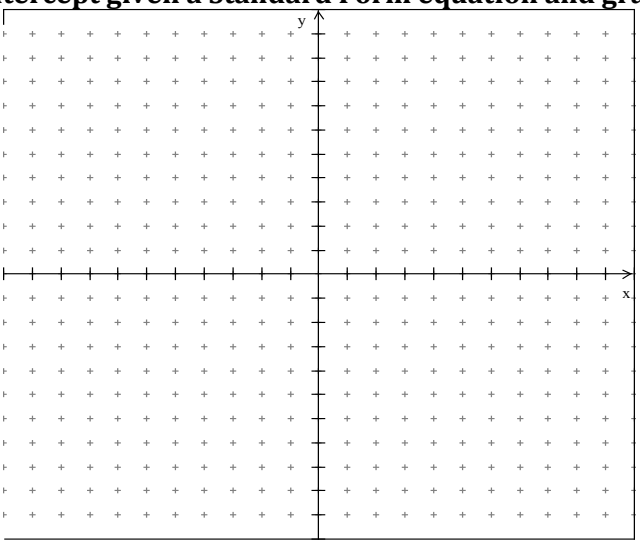
Section 9: Determine the slope, x intercept and y intercept given a Standard Form equation and graph.

34) Equation: $4x - y = 1$

Slope: _____

y-int: _____

x-int: _____

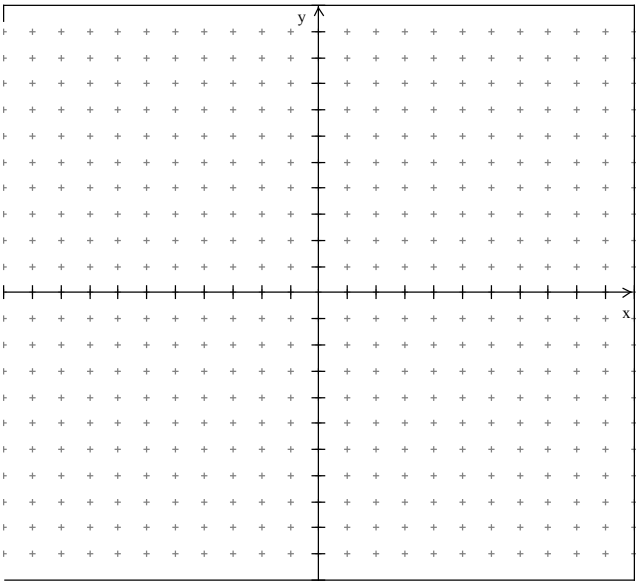


35) Equation: $x = -3$

Slope: _____

y-int: _____

x-int: _____



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Section 10: Solve the equation for the variable.

36) $-125 = -5(5 + x)$

37) $-9 = -5 + \frac{x}{4}$

38) $12 = -3(4 - 6n) - (6 + 3n)$

39) $55 = 5(-4p + 7) - 4(5p - 5)$

40) $8(1 - 8x) = 8 + 7x$

41) $4 - 2(x - 6) = 6x + 8$

For 42-43 express all solutions as fractions. Leave answers in EXACT form (fraction form).

42) $-\left(-k + \frac{1}{3}\right) = \frac{3}{4}(k - 6)$

43) $\frac{6}{7}(7p + 1) = \frac{9}{2}\left(p + \frac{4}{7}\right)$

For 44 – 45 express all solutions as decimals rounded to the nearest hundredth.

44) $-7.1(7.8 - 3.9n) = -25.077$

45) $5.9(k + 2.56) = -5.4k$

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Section 11: Solve the inequality for the variable. Graph solution on a number line.

46) $-47 > -5 - 6(1 + 2x)$

47) $-5x + 4(5 - 2x) \leq 3x + 36$

Section 12: Simplify each expression using exponent rules.

48) $(3)^4(3)^2$

49) $x^{-7} \cdot x^9$

50) $\frac{y^{15}}{y^5}$

51) $(-2x^2y^0)^4$

52) $(-5m)^0$

53) $\frac{y^4}{6x^3} \cdot \frac{12x^2}{xy}$

54) $\frac{5x^2}{y^{-3}} \cdot \frac{1}{15x^4y^{-1}}$

55) $(-2xy^3)^{-3}$

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Section 13: Simplify the following radicals. <u>No decimal answers.</u>

56) $\sqrt{9}$

57) $\sqrt{32}$

58) $\sqrt{50}$

59) $\sqrt{80}$

60) $\sqrt{72}$

61) $3\sqrt{30}$

Section 14: Rationalize each denominator. When possible, simplify by reducing the resulting fraction.

62) $\frac{42}{\sqrt{7}}$

63) $\frac{1}{\sqrt{7}}$

64) $\frac{6}{\sqrt{2}}$

65) $\frac{15}{\sqrt{5}}$

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Section 15: Solve the system of linear equations using Elimination or Substitution. Answers should be expressed as fractions where appropriate.

66) $\begin{cases} 3x + 5y = 27 \\ 2x = 8 \end{cases}$

67) $\begin{cases} x - 7y = -28 \\ 9x + 4y = 16 \end{cases}$

68) $\begin{cases} 6x + 12y = -5 \\ -4x - 9y = 4 \end{cases}$

69) $\begin{cases} -7x + 2y = 16 \\ 2x + 5y = 12 \end{cases}$