

Robbinsville School District
Algebra 2 Summer Assignment

Welcome to Algebra 2! On the following pages you will find your summer assignment for the upcoming 2018-2019 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. It will be worth **10 points** and will be graded based on **thoughtful effort**.
- It is **recommended** that you work on this assignment during **August**.
- 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.

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

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



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

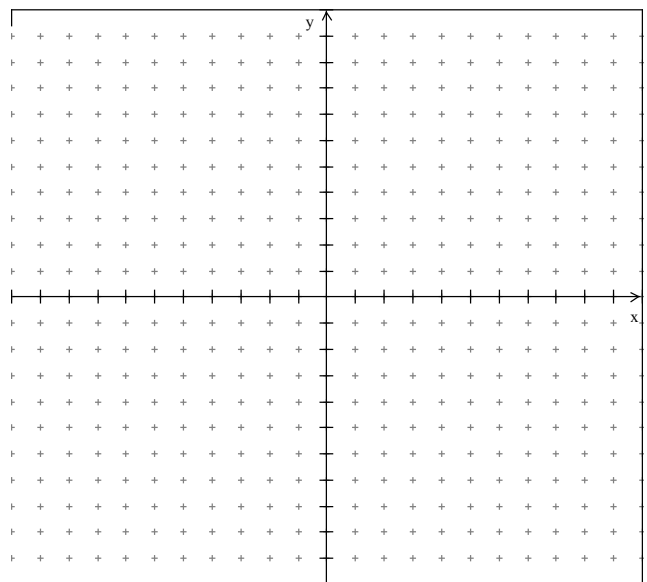
Section 7: Determine the slope, x intercept and y intercept given a Slope-Intercept Form equation and graph.

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

Slope: _____

y-int: _____

x-int: _____

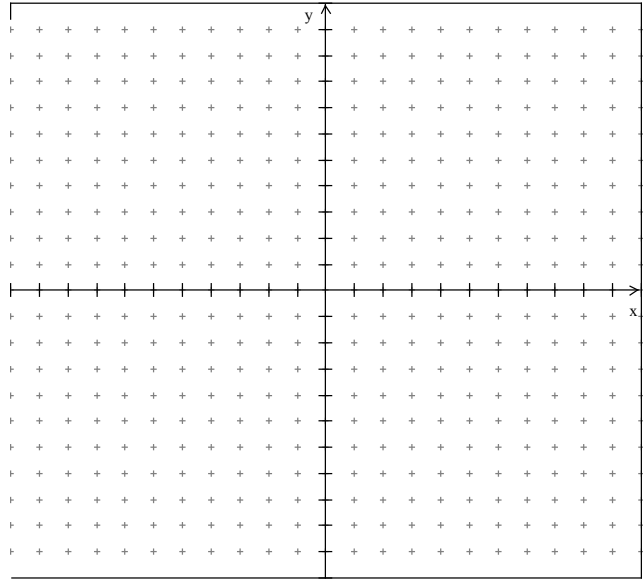


30) Equation: $y = 3x - 4$

Slope: _____

y-int: _____

x-int: _____

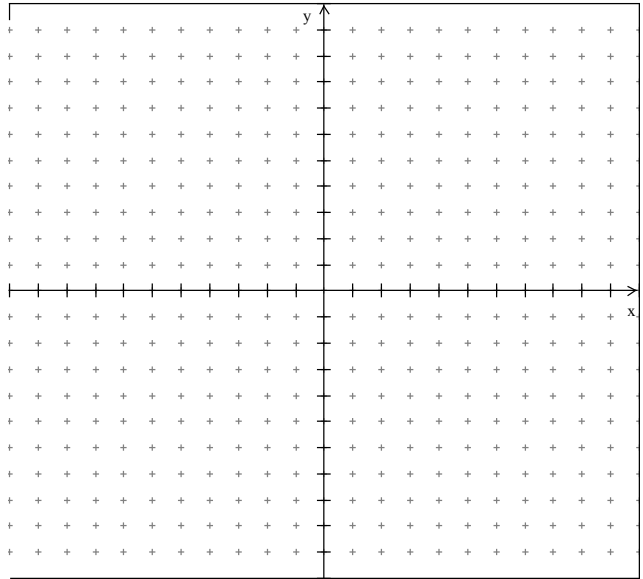


31) Equation: $y = 2$

Slope: _____

y-int: _____

x-int: _____



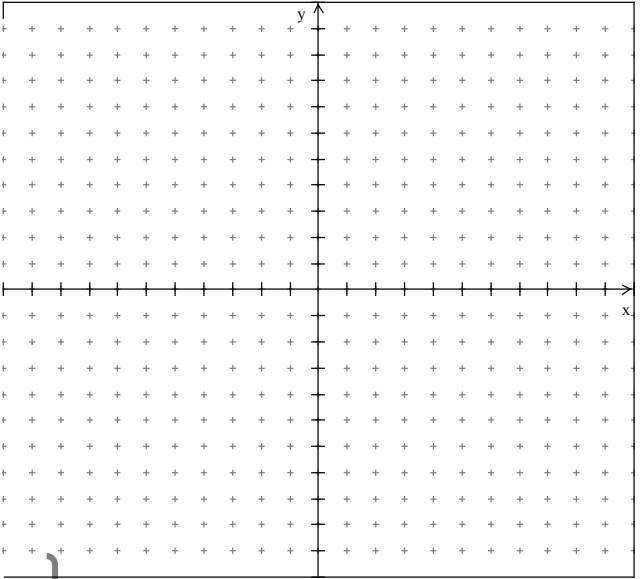
Section 8: Determine the Slope-Intercept Form equation, slope, x intercept and y intercept given two points and then graph.

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

Equation: _____

Slope: _____

y-int: _____



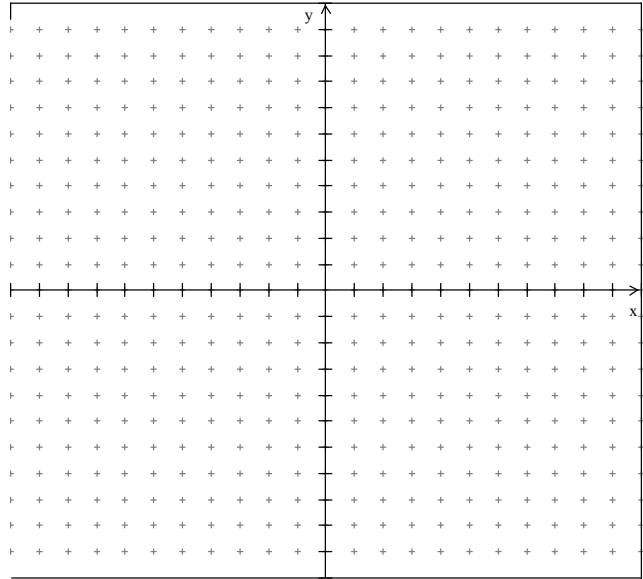
33) Given: $(1, 3)$ and $(4, -6)$

Equation: _____

Slope: _____

y-int: _____

x-int: _____



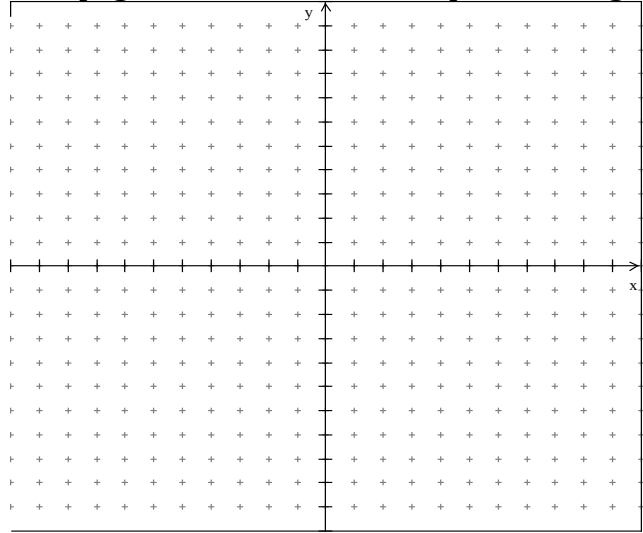
Section 9: Determine the slope, x intercept and y intercept given a Standard Form equation and graph.

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

Slope: _____

y-int: _____

x-int: _____

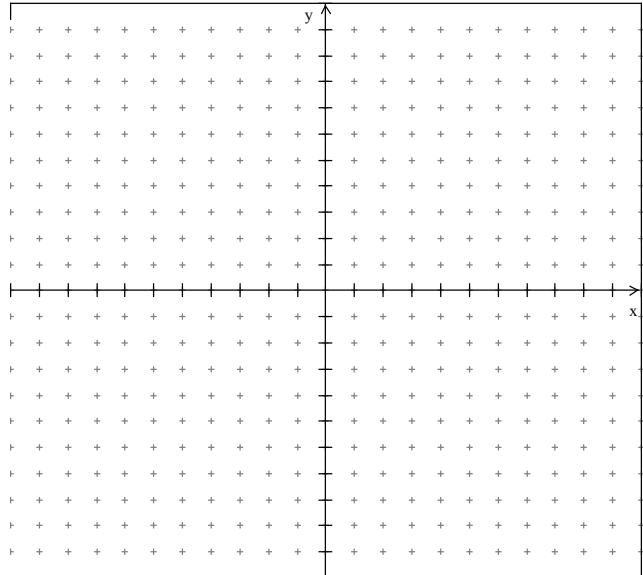


35) Equation: $x = -3$

Slope: _____

y-int: _____

x-int: _____



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

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



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

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

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

Section 13: Simplify the following radicals. No decimal answers.



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

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