

## **Algebra II with Analysis Summer Review Assignment**

Students,

This assignment should serve as a review of the Algebra skills necessary for success in Algebra II with Analysis. Our hope is that this review will keep your mind mathematically active during the summer, identify weaknesses in Algebra, if they exist, and prepare you for the fun and challenging year ahead.

We expect that you come to class knowing this material and ready to continue learning Algebra. **Answer all questions on separate paper. SHOW ALL WORK.** This assignment will be collected on the first day of school.

Enjoy your summer. See you in August ready to learn!!!!

Your Algebra II with Analysis Teachers

I. Solve the systems of equations.

1.  $5x + 4y = 6$   
 $-2x - 3y = -1$

2.  $-2x + y = 8$   
 $y = -3x - 2$

3.  $-x + 2y = 11$   
 $3x - 2y = -13$

4.  $3x - 2y = 5$   
 $-6x + 4y = 7$

II. Solve the linear equations.

1.  $-4(3 - x) = 2(x + 6)$

2.  $2(3x + 6) + 8 = 6x$

3.  $3(4 - x) = 12 - 3x$

4.  $3x - 2(x + 1) = 0$

5.  $3(x + 2) + 1 = 2x + 7 + x$

III. Factor

1.  $x^2 - x - 72$

2.  $7x^3 - 4x^2 + 8x$

3.  $a^2 + 20a + 64$

4.  $10m^3n^2 - 15m^2n + 25m$

5.  $2x^2y - 4xy - 30y$

6.  $x^2 - 64$

7.  $2x^2 + 9x - 5$

8.  $x^2 + 12x + 36$

IV. Solve the quadratic equations.

1.  $r^2 + 10r - 9 = 0$

2.  $p^2 + 6p = 0$

3.  $x^2 - 3x = 10$

4.  $5m^2 = 7m$

5.  $(2c + 1)(c + 3) = 0$

6.  $y^2 = 4y + 32$

7.  $2x^2 - 3x - 2 = 0$

8.  $z^2 = 16$

9.  $d^2 + 5d - 1 = 0$

V. Write the equation of the following lines.

1. through  $(0, -1)$ ,  $m = -1$

2. through  $(-2, 3)$ ,  $m = \frac{4}{3}$

3. through  $(3, -1)$ ,  $m = 0$

4. vertical, through  $(5, 4)$

5. through  $(2, 3)$  and  $(7, -2)$

6. through  $(3, 4)$  and  $(-2, 4)$

VI. Graph: state domain and range for each graph (use interval notation)

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

2.  $y = 3x + 2$

3.  $y = (x - 2)^2 + 1$

4.  $y = x^2 + 6x + 1$

5.  $2x + 3y = 12$

6.  $y = |x|$

7.  $y = |x + 2|$

8.  $y = |x| + 3$

9.  $y \geq 2x + 1$

10.  $y < -3x + 4$

11.  $y \leq 4$

12.  $x > -2$

13.  $y = 5$

14.  $x = -2$

15. line through  $(-1, 3)$  with slope 0

## VII. Simplify

- $(-3x^2 + 4x - 7) + (2x^2 - 7x + 8)$
- $\frac{64x^3y^2 - 16x^2y^3 + 32x^5y^5}{8x^2y^2}$
- $(39a^4 - 4a^3 + 2a^2 - a - 7) - (10a^4 + 3a^3 - 2a^2 - a + 8)$
- $2x^2z(3x - 2z)$
- $-3xy^3(x - 2y)$
- $(3x^2 + x - 1)(2x - 3)$
- $\frac{10a^3b^2c^7}{5a^5bc^7}$
- $(8a^3b^2)(2a^{-4}b^{-5})$
- $(-3x^2y^3z)^3$
- $(5a^4b^2c)^0$
- $\frac{3x^3y^2}{6x^{-2}y^5}$
- $(3x + 7)(2x - 5)$
- $(x + 6)^2$

## VIII. Simplify (exact answers – no decimals – For example $\sqrt{8} = 2\sqrt{2}$ )

- $\sqrt{32}$
- $\sqrt{\frac{3}{5}}$
- $\sqrt{48xy^5}$
- $\sqrt{\frac{3}{2}}$
- $\sqrt{8} + \sqrt{18} - \sqrt{32}$
- $\sqrt{21} * \sqrt{14}$
- $\sqrt{16a^3b^2}$

## IX. Solve

- $\sqrt{2a} = 8$
- $\sqrt{3x - 5} = \sqrt{2x + 4}$
- $2 - \sqrt{x} = 4$
- $\sqrt{3x} - 4 = 2$

## X. Matrices

$$A = \begin{bmatrix} 2 & 5 & -1 \\ 3 & -2 & 0 \end{bmatrix}$$

$$B = \begin{bmatrix} 5 & -3 \\ 0 & 2 \\ -1 & 4 \end{bmatrix}$$

$$C = \begin{bmatrix} -1 & 3 & 0 \\ 5 & 2 & -3 \end{bmatrix}$$

- A + C
- 2B
- C - A
- A + B
- order of [A]
- order of [B]
- order of [C]