ALGEBRA II

Summer Assignment

Welcome to **Algebra II**! This review assignment is designed to refresh your Algebra I and Geometry skills. It includes information that was taught in previous courses and will be used throughout the upcoming school year. As you prepare, you may need to seek help by accessing the suggested resources or links provided.

IMPORTANT: Read this page first...

INSTRUCTIONS

1. Complete all sections and problems in this packet on your own.
2. Make sure to show your work to earn credit. Work may be done on a printed version of this packet or in a separate notebook.
3. Calculators may be used as needed.

PACING

You should pace yourself to work on this assignment at least a few hours a week leading up to the start of school in September. If you complete the packet at the end of June or early in July, it will not be very helpful in preparation for the start of school. Also, it will not be helpful if you try to complete the entire packet a night or two before school starts. Pace yourself by setting a calendar reminder and scheduling blocks of time to focus on this assignment as you prepare to return to school in September.

GRADING

- On the first day of school, your math teacher will check for full completion of this Summer Assignment and the supporting work for your responses (no work = no credit). This part will be weighted at 50% - this is the grade that represents your effort and following of directions.
- Your teacher will then review the assignment and provide remediation as needed.
- Upon completion of your teacher's review, you will be given an assessment (a "test") based on the topics covered in this assignment. This assessment will be weighted at 50% - this is the grade that represents your mastery of the skills.
- The two weighted scores combined will count as one project grade for the 1st trimester.
- Acceptance of late assignments will be limited and subject to point deductions.

RESOURCES & REFERENCE MATERIALS

http://www.khanacademy.org
http://www.purplemath.com/modules
http://www.hippocampus.org
http://www.virtualnerd.com/algebra-1/all
http://www.mathsisfun.com/algebra/index.html

We are looking forward to meeting you in September.
Go Bulldogs!

Multi-Step Equations

Solve each equation. Show all work and check your solutions

Click **HERE** to watch a helpful video before completing the problems below.

1. $-18 - 6k = 6(1 + 3k)$

2. $24a - 22 = -4(1 - 6a)$

3. $-3(4x + 3) + 4(6x + 1) = 43$

4. $-5(1 - 5x) + 5(-8x - 2) = -4x - 8x$

Adding and Subtracting Polynomials

Click **HERE** to watch a helpful video before completing the problems below.

1. $(-9xy^2 - 9x^4y^3) + (3xy^3 + 7y^4 - 8x^4y^4) + (3x^4y^3 + 2xy^3)$

2. $(4x^2 + 7x^3y^2) - (-6x^2 - 7x^3y^2 - 4x) - (10x + 9x^2)$

Multiplying Polynomials

Click **HERE** and **HERE** to watch helpful videos before completing the problems below.

1. $(5x + 2)(x - 3)$

3. $(3x + 7)(3x - 7)$

2. $(x + 4)^2$

4. $(3x - 1)^2$

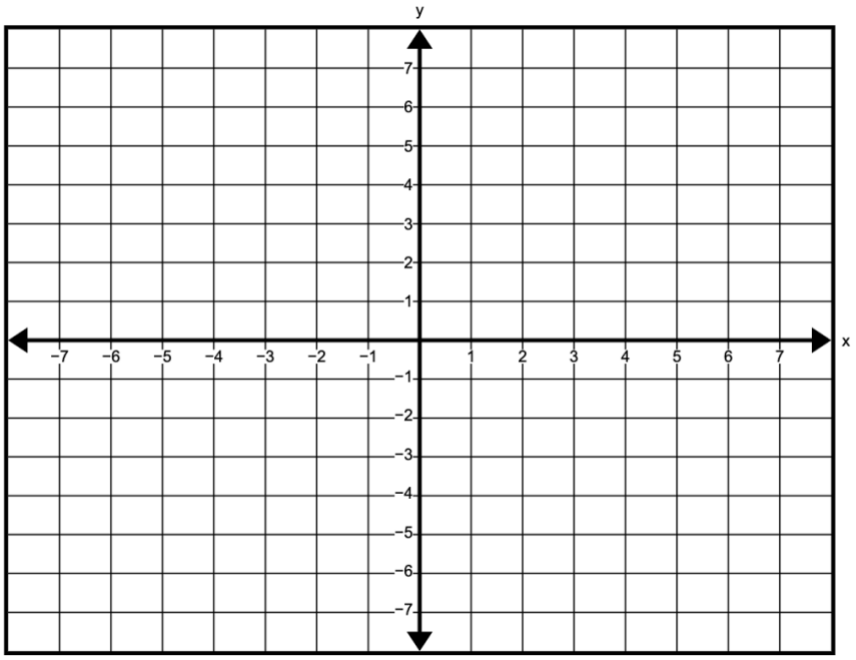
WORD PROBLEMS

1. In a basketball game, Marlene made 16 field goals. Each of field goals were worth either 2 or 3 points, and Marlene scored a total of 39 points from field goals.

   a. Let x represent the number of 2-point field goals and y represent the number of 3-point field goals. Write a system of equations in terms of x and y to model the situation.

   b. How many 3-point field goals did Marlene make in the game?

2. Graph the equation $6x - 4y = 12$ on the xy-coordinate plane. Identify the x-intercept of te graph amd the y-intercept of the graph.



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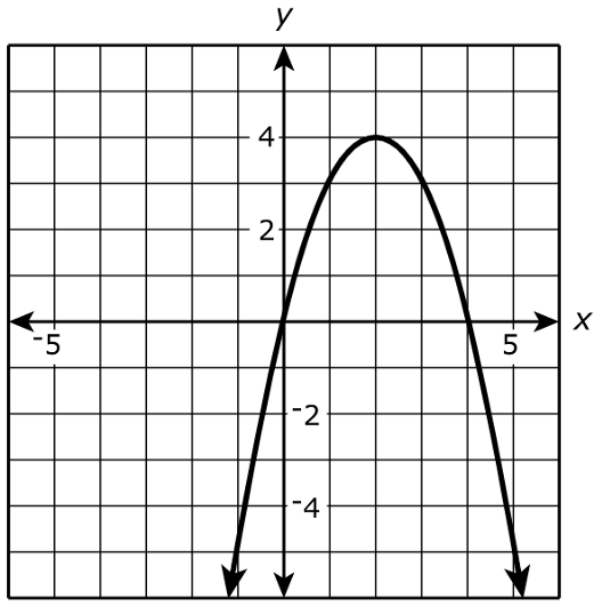
3. The elephant population in northwestern Namibia and Etosha National Park can be predicted by the expression $2549(1.045)^b$, where b is the number of years since 1995. The table below represents the combined estimates for Etosha National Park and the Northwestern Population

Year	Base Year	Estimated Number of Elephants
1998	3	3,218
2000	5	3,628
2002	7	3,721
2004	9	3,571

What does the value 2649 represent?

- ○ The predicted increase in the number of elephants in the region each year.
- ○ The predicted number of elephants in the region in 1995.
- ○ The year when the elephant population is predicted to stop increasing.
- ○ The percentage the elephant population is predicted to increase each year

4. The function $f(x) = 4x - x^2$ is graphed as shown.



a. Determine whether the function is **INCREASING** or **DECREASING** on the given intervals:

$x < 0$	
$0 < x < 2$	
$2 < x < 4$	
$x > 4$	

b. Determine whether $\boldsymbol{f(x) < 0}$ or $\boldsymbol{f(x) > 0}$ on the given intervals:

$x < 0$	
$0 < x < 2$	
$2 < x < 4$	
$x > 4$	

5. Which points are on the graph of the equation $-3x + 6y + 5 = 7$?
   Select all that apply:

   ☐ A. $(-3,6)$

   ☐ B. $(-2,0)$

   ☐ C. $(0,-2)$

   ☐ D. $(6,-3)$

   ☐ E. $(8,2)$

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6. At the beginning of an experiment, the number of bacteria in a colony was counted at time $t = 0$. The number of bacteria in the colony t minutes after the initial count is modeled by the function $b(t) = 4(2)^t$. What is the average rate of change in the number of bacteria for the first 5 minutes of the experiment?

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7. A certain type of lily plant is growing in a pond in such a way that the number of plants is growing exponentially. The number of plants, N, in the pond at time t is modeled by the function $N(t) = ab^t$, where a and b are constants and t is measured in months. The table shows the two values of the function.

t	$N(t)$
0	150
1	450

   Write and equation that can be used to find the number, N, in the pond at time t.

8. Consider the three points $(-4, -3)$, $(20,15)$, and $(48,36)$.
   Graph the line that passes through these three points on the coordinate plane.