**Algebra I Midterm**

**Name/Student Number:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Score:\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_**

**Directions:** *For each question show all work that is required to arrive at the solution. Save this document with your answers and submit as an attachment to be graded.*

1. **Simplify the expression. Show your work.**
2. + (32 – 42)

1. **Evaluate the expression for a = –1 and b = 5. Show your work.**

5a – 7b + b2

1. **Simplify the expression.**

9xy2 – 11xy2

1. **Simplify the expression.**

-3(b – 7)

1. **Solve the equation. Show your work. Check your answer.**

4*y* + 5 = – 31

1. **Solve the equation. Show your work. Check your answer.**

3*x* – 7 = 5*x* + 19

1. **A cheetah ran 300 feet in 2.92 seconds. What was the cheetah’s average speed in miles per hour? Show your work.**
2. **Write a compound inequality that the graph could represent.**



1. **Find the solutions of the inequality. Show your work.**

4*b* – 3 > –1

1. **A taco stand sells tacos for $3.25 each. The stand’s expenses for the day are $210. Define your variables and write an inequality to represent the amount of tacos they need to sell per day to make a profit, and then solve the inequality. Provide your conclusion as a complete sentence.**
2. 

**Represent the above relationship between the number of triangles and the perimeter of the figures they form by filling in the table below. Show your work.**

|  |  |
| --- | --- |
| **Number of Triangles** | **Perimeter** |
| **1** |  |
| **2** |  |
| **3** |  |

1. 

**Write the equation that represents the relationship between *n* the number of triangles and *p* the perimeter of the figures formed.**

1. **Model the function rule y = -2x - 3 with a table of values. Show your work.**
2. **For the function rule y = -2x - 3, provide the x-y coordinates of the y-intercept and the x-intercept. Show your work.**
3. **Identify the domain and range of the relation.**

{(-9, 2), (-4, 2), (3, 2), (9, 2)}

1. **The function *g(t)* = *2t* represents the number of guitar lessons, *g(t)*, you can complete in *t* months. How many guitar lessons can you complete in 7 months? Provide your conclusion as a complete sentence.**

1. **The scatter plot below shows the height of a tree over time. What is the approximate height of the tree after 10 years?**

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1. **Write an equation of a line whose graph is parallel to the graph of *y* = 3*x* – 10.**
2. **Tom has a collection of 30 CDs and Nita has a collection of 18 CDs. Tom is adding 1 CD a month to his collection while Nita is adding 5 CDs a month to her collection. Find the number of months after which they will have the same number of CDs. Show your work.**
3. **Determine the solution of the system. Show your work.**

 Y = 5x – 9

 Y = 2x + 6