First name: _____ Last name: _____   Student ID: _____

Algebra 1 Homework

Basic problems: All questions must be done using Algebra.

1. 90,000 and 4,000,000 added to three-sixths of a number equals 4,170,082. What is the number?

2. The difference between 621 and half of a number is 411. What is the number?

3. 4,921 and 7,661 added to the difference between 327 and half of a number is 12,748. What is the number?

4. Amanda, Anna, Cameron, Emma, Eric, Devin, and Madison are each a different age.
Figure out the age of each person.

1) Madison is thirty-five years older than Eric.

2) Cameron is seventeen years older than Madison.

3) Amanda is twenty-four years older than Emma.

4) Emma is eighteen years older than Devin.

5) The sum of the ages of Amanda and Emma is one hundred fourteen.

6) The sum of the ages of Madison and Eric is seventy-one.

7) In fifteen years, Devin's age will be one hundred forty-two less than four times the age of Anna.

8) Devin's age is sixty-six less than three times the age of Anna.

Challenge problems: All questions must be done using Algebra.

1. A sequence of numbers is obtained by multiplying each previous value by 2 and adding a number x to the result. If the 6th number is 70 and the 9th number is 609, what is the value of x?

2. Exactly 100 people live in a village. The oldest person in the village was born in 1900 and everybody in the village was born in a different year but all on January 1st. In 1999, the sum of the digits in Julie's birth year was equal to her age. How old was she?

3. On a 100 question test, 9 points are given for each correct answer and 5 points deducted for each incorrect answer. Questions which are not answered are not included in the total score. What is the largest number of questions which can be answered to get a total score of 0?

4. The average age of Samir's parents is 49. His father is 8 years older than his mother. If the average age of Samir and his father is 27, how old is Samir?

5. Maurice wants to multiply together two numbers composed of two digits each. Unfortunately, he reverses the digits of one of the numbers and obtains a result which is greater than the exact result by 3015. Which one of the following could be one of the numbers?
    (A) 23   (B) 38   (C) 45   (D) 62   (E) 81

6. The mathematician Augustus De Morgan lived in the nineteenth century. He once made the following statement: "I was x years old in the year x^2." In what year was De Morgan born?

7. An integer is composed of three digits. The first digit is even. The second digit is six less than the first digit. The third digit is three less than the first. If the integer is not divisible by five, what is the sum of the three digits?

8. The planet-year of a given planet is the time it takes the planet to make a complete revolution around the sun. An Earth-year is simply equal to 1 year. Simplifying the laws of celestial mechanics, the square of the duration of a planet-year is proportional to the cube of the distance between the planet and the sun. Knowing that Jupiter is roughly 5 times as far from the Sun than the Earth, then the duration of the Jupiter-year is approximately
    (A) 5 years (B) 7 years (C) 9 years (D) 11 years (E) 13 years

9. Two numbers are given. The sum of their squares minus twice their product is equal to 16. What is the difference between the largest and the smallest of these numbers?

10. The numerator of a certain fraction is 3 less than the denominator. If the numerator is tripled and the denominator is increased by 7, the resulting fraction is equal to 3/2. What was the original fraction?

11. In 2 years I will be 5 times as old as my son and half as old as my father. My father just turned 78. How old is my son?