

**GRADE 12 ESSENTIAL
UNIT A – PROBLEM SOLVE
TEST OF GENIUS 1**

Name: _____

Date: _____

Test of Genius #1 Not for the Timid

Try a few of these if you are really bored; advanced ; optional
Maybe you **ARE** a genius. There are a variety of ways to solve each of these.

I do have an answer key somewhere if you are desperate, but I decline to look at it even myself!

1. Farmer John puts his chickens into cages. He finds that if he puts 4 chickens into each cage, he has 2 chickens left over. But if he puts 6 chickens into each cage, he has 2 cages left over. How many cages and how many chickens does Farmer John have?

2. Arrange the whole numbers from 1 to 15 in the boxes below so that no number is repeated and the sum of the numbers in any 2 adjacent boxes is a perfect square.

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I never did figure this one out, but a student did!

3. A boy agreed to work one year for \$1,200 and a horse. At the end of 6 months, he quit and received \$400 plus the horse. What was the value of the horse?

4. Bubba ran a 3-mile race. He ran the first mile at a speed of 5mph, the second mile at a speed of 5mph, and the third mile at a speed of 6mph. How long did it take Bubba to run the 3 miles?

5. Four chefs can prepare 20 desserts in 10 minutes. At this rate how many chefs are needed to prepare 75 desserts in 15 minutes?

6. Substitute a different digit for each letter to make the following true:

$$\begin{array}{r}
 \text{H A L F} \\
 + \text{H A L F} \\
 \hline
 \text{W H O L E}
 \end{array}$$

7. Five years ago, I planted a 4 foot tall tree in my front yard, It has grown the same amount each year, and last year it was twice as tall as it was at the end of the first year. How tall is the tree now?

8. How long will it take a mile-long train going 20 mph to get completely through a 2 mile long tunnel?

9. Borox is loading a freight elevator with 12 boxes: 4 small, 5 medium, and 3 large. A small box and a medium box together weigh 20 pounds; a medium box and a large box together weigh 28 pounds; and a large box and a small box together weigh 24 pounds. What is the total weight of the 12 boxes?

10. What is the maximum number of points of intersection when two circles and five straight lines intersect each other?

11. Two candles of equal length are lighted at noon. One candle takes 9 hours to burn out, and the other takes 6 hours to burn out. At what time will the slower burning candle be exactly twice as long as the faster burning one?

12. Find the number of digits in the value of this expression:

$$4^{16} * 5^{32}$$

13. The perimeter of one square is 36in more than the perimeter of a second square, and the area of the first square is 243 square inches more than the area of the second square. Find the area of each square.

14. Arrange the four numbers 2, 3, 4, and 5, along with one plus sign and one equals sign, into a true mathematical equation.