Honors Algebra 1 Summer Assignment #1

Using an on-line resource, you will experience some of the math that small business owners face. First, go to http://hoodamath.com/games/coffeeshopgame.html This takes you to the main page to play. Take your time, and play with the game for a while to make sure you understand how it all works. Feel free to ask your parents for help in clarifying something you might not understand. After learning about the game, you can use the second link, http://hoodamath.com/worksheets/ as the resource you will fill out from playing the game. This worksheet is what you will bring to class at the start of the next school year. Enjoy!

Honors Algebra 1 Summer Assignment #2

Get several pieces of graph paper. On each piece, you will need to draw a large coordinate plane. On each coordinate plane, you will draw a different shape/figure. These shapes will be connected together by line segments, so they should all be straight (i.e. no curves). These segments should always connect at sets of coordinates that are integers (i.e. no fractions/decimals). Your task is to determine all of the linear equations that contain the line segments you used to draw your shapes. You may not use any horizontal or vertical lines in your shapes, only diagonals. The shapes I want you to draw are a triangle, a diamond (4 equal sides, but <u>not</u> a square), a five pointed star, and a block-letter V. You may want to practice these shapes a few times before fitting them onto your coordinate planes.

Honors Algebra 1 Summer Assignment #3

The following problems vary in difficulty. Some may be easy some may be quite difficult. See how many you can get the answers to…
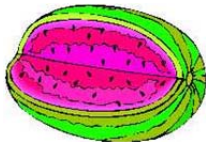
Number Theory

Start out simple...
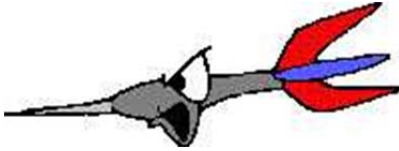
1. List 10 possible combinations you could get with 4 darts. The numbers on the targets are 7-5-3-1. Try to establish some logical method of doing this.

2. Compare different pay scales. Decide if it is better to receive $300 a week or to be paid hourly at a rate of $7.50 per hour. What factors could affect your decision?

Now try to work this out...

3. Three watermelons and two cantaloupes weigh 32 pounds. Four watermelons and three cantaloupes weigh 44 pounds. All watermelons weigh the same and all cantaloupes weigh the same. What is the weight of two watermelons and one cantaloupe?

4. Sylvester measured his pulse and found that his heart beat at a rate of 80 beats a minute at rest. At this rate, how many days will it take his heart to beat 1,000,000 times? Show your work and be sure you explain each step.

This will really challenge you...

5. Conrad's Taxi Service charges $1.50 for the first mile and $.90 for each additional mile. How far could Mr. Kulp go for $20 if he gives the driver a $2 tip?

Measurement

Start out simple...

Rabbit's Run (taken from MATH FORUM)

6. Regina has received a pet rabbit from her neighbor Rodney who is about to move to an apartment that does not allow pets. Her father is going to help her build a run for the rabbit in their back yard, but he wants Regina to design it.

Regina sits down to think about the possibilities. Her father says that the run must be rectangular with whole number dimensions. If they want to enclose 48 square feet, how many options do they have?

Now try to work this out...

Area And Perimeter

7. If you fold a square paper vertically, the new rectangle has a perimeter of 39 inches. What is the area of the original square?

What is the perimeter of the original square?

What is the area of the resulting rectangle?

Make a ratio of areas and perimeters. What do you notice?

This will really challenge you...

Better Buy

8. Mr. and Mrs. Simpleton are shopping for carpet for their living room and dining room. Their living room is 21 feet by 15 feet and their dining room is 12 feet by 9 feet. They have looked at two different priced carpets. One for $14.95 a square yard installed and another for $19.99 a square yard installed. How much would they save by choosing the cheaper carpet? What are some other things besides money that they should consider before making their choice? After you find out how much carpet they need, figure out the savings in one calculation. Explain.

Geometry

Start out simple...

Where Am I?

9. Tom Terrific has a garden in the shape of a rectangle. He wanted to plant a tree in a specific spot. He wanted it to be in the exact center of the garden. What would be a way that he could find the center without using any measurement?

Now try to work this out...

Reflections

10. Find 2 polygons other than a square and rectangle whose reflections are identical to the original. Draw them.
Show how the reflection of a triangle can be the same as the original.

This will really challenge you...

Symmetry

11. What is the largest three digit number that has both vertical and horizontal symmetry? Think of a three letter word with horizontal symmetry.

Patterns, Algebra, And Functions

Start out simple...

Going Camping

12. Groups of campers were going to an island. On the first day 10 went over and 2 came back. On the second day, 12 went over and 3 came back. If this pattern continues, how many would be on the island at the end of a week? How many would be left?
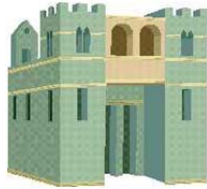
Now try to work this out...

A Batty Diet

13. A bat ate 1050 dragon flies on four consecutive nights. Each night she ate 25 more than on the night before. How many did she eat each night? Solve this algebraically.

This will really challenge you...

Windemere Castle (From The Problem Solver)

14. Evelyn is reading about Windemere Castle in Scotland. Many years ago, when prisoners were held in various cells in the dungeon area, they began to dig passages connecting each cell to each of the other cells in the dungeon. If there were 20 cells in all, what is the fewest number of passages that had to be tunneled out over the years?

Data, Statistics, And Probability

Start out simple...

Bouncing Babies (Taken from MATH FORUM)

15. At a baby shower, we started discussing baby statistics. One of the women told us she had heard a report that for every 100 babies born, there were 6 more boys than girls. If we were to randomly pick a child from a representative group, what is the probability of picking a girl?

Now try to work this out...

Trees

16. A team of scientists found that there were 4 oak trees for every 10 pine trees. How many oak trees were there if they counted 36 more pine than oak?

This will really challenge you...

Cookies!

17. Four friends buy 36 cookies for $12. Each person contributes the following amount of money:

Tom--$2
Jake--$3
Ted--$4
Sam--$3

Each person gets the number of cookies proportional to the money paid. Draw a circle graph to represent the amount of cookies each got.
Draw another circle graph to show how many each would have if Ted gives half of his cookies to Tom.
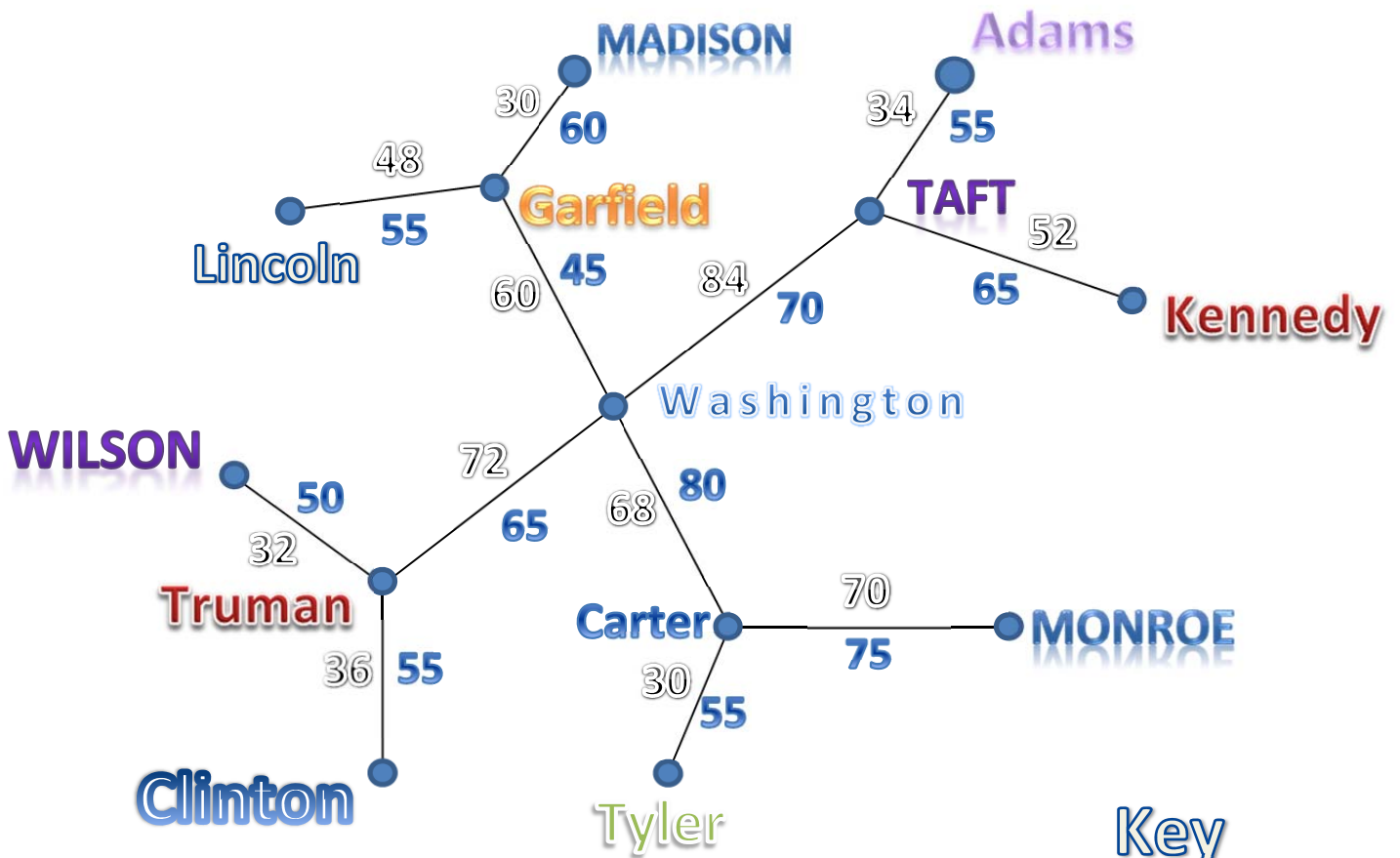
Up You Go!

18. In the old days there were elevator operators to transport passengers. Don Downs always started his day in the basement. He went up 20 floors to take his boss some coffee. Then he went down 8 floors to take a Danish to his friend. He went up 7 floors to check things out. This was the halfway point in the building. How many floors are in this building? Draw a diagram to show how you would figure this out.

Honors Algebra 1 Summer Assignment #4

Using the diagram below, you are going to find certain information using the distance = rate x time formula (d = rt). The diagram represents a scattering of cities connected by roads. The direct lines between cities are the only ways to get from one city to another. On each connecting road, there is listed a distance between the two cities, and the average speed at which cars may travel on that particular road (the key below indicates which number represents which unit). Show your work on another piece of paper. You may use a calculator.

Questions

1. How long does it take to get from Washington to Taft?

1._____

2. How long does it take to get from Clinton to Wilson?

2._____

3. How long does it take to get from Tyler to Garfield?

3._____

4. How long does it take to get from Monroe to Adams?

4._____

5. You got caught in traffic on the way from Truman to Washington,

and it ended up taking 2 hours. What was your average speed?

5._____

6. Eddie was going to Washington from Kennedy, while Bud

headed there from Monroe. If they both left at the same time, who

got there first?

6._____

7. Sam left from Wilson, on his way to Taft. One hour later, Jim left

Garfield, also on his way to Taft. Who got there first?

7._____

8. Jane left Lincoln on her way to Garfield. 20 minutes later, Hanna

left Madison on her way to Garfield. Who got there first?

8._____

9. What is the longest trip possible between two cities, using the

most direct route possible (longest is defined by <u>time</u>, not distance)?

9._____

MADISON

Adams

30 **60**

34 **55**

48

Garfield

TAFT

52

55

Lincoln

60 **45**

84 **70**

65

Kennedy

Washington

WILSON

72

80

50

68

32

65

70

Truman

Carter

MONROE

36 **55**

30

75

55

Clinton

Tyler

Key
Rate (mph)
Distance (m)