Systems of Equations Project Name_____Date_____

In this project you will imagine that you are a slave named Madison Washington living in 1840. His story was written about by Frederick Douglass in "The Heroic Slave."

Part I. *The Escape*

Your story begins outside of a plantation in Virginia where you are under the burden of a heavy load of wood. You meet a kind White Man named Mr. Listwell who seems like a person who could help you escape to freedom. You decide to leave the plantation and make a run for the hills where you are able to find a hiding spot.

After escaping from slavery in Virginia you run through the forests and the mountains by way of the underground railroad. After traveling through Ohio, you find freedom when you cross into Windsor, Canada near Detroit, Michigan. You ran into Mr. Listwell on your way to Canada and he gave you a bag full of quarters and dimes. He told you that the bag was worth $21.40, a great deal of money in those times, and you were able to count that it had 100 coins. After 6 years of traveling, this was going to be the money you would use to start a stable new life in Canada.

How many quarters were in the bag? How many dimes were in the bag? Solve this problem in as many ways as you can. Show and explain your process clearly.

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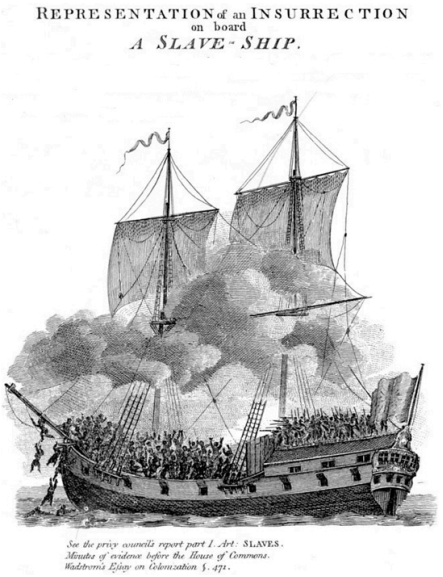
Part II. *The Capture*

Your life in Canada is full of freedom, and also full of sadness. It's heartbreaking knowing that your wife was still in slavery back in Virginia. After another sleepless night, you decide you can't take it any more. Upon Waking up the next day you decide to go back into America to attempt to free your wife.

Travelling through Canada and the northern states America was easy, and you were able to follow your tracks until you were at your wife's bedroom window. "Hey! It's Me!" Your wife wakes up startled. She can't believe you're there. But the owners dogs also know you're there. "Bark!! Bark!!" The barking is so loud it woke the owners. Before you can escape, they've surrounded and captured you. Instead of escaping with your wife, you are now forced onto a boat with 130 slaves to be taken to New Orleans. When the boat lands you and everyone else will be auctioned off back into slavery.

Part III. *The Insurrection*

You decide with the a few other slaves to take over the ship. You offer to work as the ship's cook, which allows you access to all the slaves and allows you to slowly spread the word.



3 days after the boat sails out of Hampton, Virginia you signal for the slaves to begin their attack. Because the are so many slaves all working as a team the guards can't keep everyone under control. The crew is quickly overwhelmed and surrenders. After the captain sneaks away in a life boat the rest of the ship's staff surrenders and you are now in charge of *The Creole*.

Charting the course

Once you have taken over the ship you must now sail to freedom. If you sail back to anywhere in the south or the north they will return you to slavery because in the U.S. you are considered the legal property of your owner. Now you must look at the ship's map below and select a place to sail the ship that is not in the U.S.

Choose carefully. If you pick a point is too far away the ship may begin to run out of food.

Where are you going to take the Creole _____

Why is this a good choice?

_____

_____

_____

_____

_____

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Part IV. *Directing the Ship*

A. Find your distance

Now that you've picked your location, use the map to draw a course from Hampton, VA to the place where you want to take the ship. Carefully measure the distance in **centimeters** with a ruler. You may need to sail around some objects to get to your location.

Convert your cm into miles:

the scale on the map says 1000 mi is about 2.1 cm long

Make this ratio:

$$\frac{2.1 \text{ cm}}{1000 \text{ mi}} = \frac{\text{your cm}}{\text{your mi}}$$

Distance in cm: _____

Distance in mi: _____

B. Planning the trip

While you and the other newly freed slaves are in the crew's cabin you find the crew's log. This log has the following table that shows how many miles they cover each day.

Fill in the following table that shows how far your boat will travel, and find the rate of miles per day.

Days of the journey (x)	Distance Traveled (y)
1	27
2	56
3	85
4	
5	

How far will you have traveled on your eighth day? _____

Find the rule for the distance (y) your boat has traveled given the days of the journey (x)

Equation_____

How did you find the equation? What do the different parts of the equation represent in this story?

_____

_____

_____

How many days will it take you to travel the entire distance?

_____

Part V. *Escaping Capture*

On the fifth day of the journey you are on guard duty, watching over the crew of the ship which you are now keeping hostage in the hold of the ship. They keep saying "***any day now the Navy will come***." You grab one of them and demand that he tells you what they know about the Navy. The crew said "The former captain used to be in the Navy. He will be able to get a Navy Cruiser in Virginia and chase after the ship. The fastest Navy cruisers travel at a rate of 42 miles a day. In fact if a Navy cruiser picked him up in the water they could have started chasing us as soon as today." The crew has also put messages in bottles about your destination so the Captain can find the messages and chase your ship. You now have to decide whether to change course to a new destination, keep going, or give up and turn yourselves in.

A. Finding the Navy Ship's Equation

a. Fill in the table for the distance a Navy ship could travel, (y), in terms of the days of your journey, (x).

Days of the journey (x)	Distance Traveled (y)
5	0
6	
7	
8	
9	

b. Make an equation for the distance a Navy ship could travel, (y), in terms of the days of your journey, (x).

Equation _____

How did you find the rule? How was your process different than finding the rule for the Creole?

_____

_____

_____

_____

When could the Navy Ship reach your destination if it followed your route?

_____

Part VI. *Finding Freedom Safely*

Use your equations and what you know about systems of equations to find the earliest number of days it would take the Navy Cruiser to catch you. Explain and justify all of the steps you are taking in complete sentences.

What should you do? Should you continue your boat on this course? If not what should you do with the *Creole*? Provide evidence for your thinking.