

# Barbanegra the Pirate

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The crafty British pirate, Blackbeard (Spaniards called him Barbanegra), had a keen mind for mathematics. The following are excerpts from a diary found in a bottle floating in the Caribbean. It might be from Blackbeard:

*23-11-1718: Tonight we anchored at a lonely island of sand and little foliage. A good-for-nothing anchorage but it does allow the men to stretch their legs.*

*24-11-1718: Woke up before the crew and had the idea to bury the treasure on the island. It has a lone palm tree, and I used it as my reference point. The treasure is buried according to the following instructions:*

- From the palm tree, I walked 40 paces North, then 5 paces West. I staked this spot with a green flag.
- From the palm tree, I walked 5 paces South, then 85 paces East. I staked this spot with another green flag.
- From the palm tree, I walked 40 paces South, then 50 paces East. I staked this spot with a red flag.
- From the palm tree, I walked 35 paces North, then 75 paces East. I staked this spot with another red flag.
- From the palm tree, I walked 30 paces South, then 100 paces East. I staked this spot with a blue flag.
- From the palm tree, I walked 70 paces North. I staked this spot with another blue flag.

*I connected the three pairs of coloured flags by tightly stringing them together with a green, red, and blue string. I buried the treasure where the strings intersected. Then I removed the strings and flags.*

*27-11-1718: Crew demanded knowledge of where the treasure is buried. I gave Louis Arot the instructions for the green flags, Ben Brackston the instructions for the red flags and Chris Cornell the instructions for the blue flags. This appeased the men, and I am content that no single man has enough information to find the treasure.*

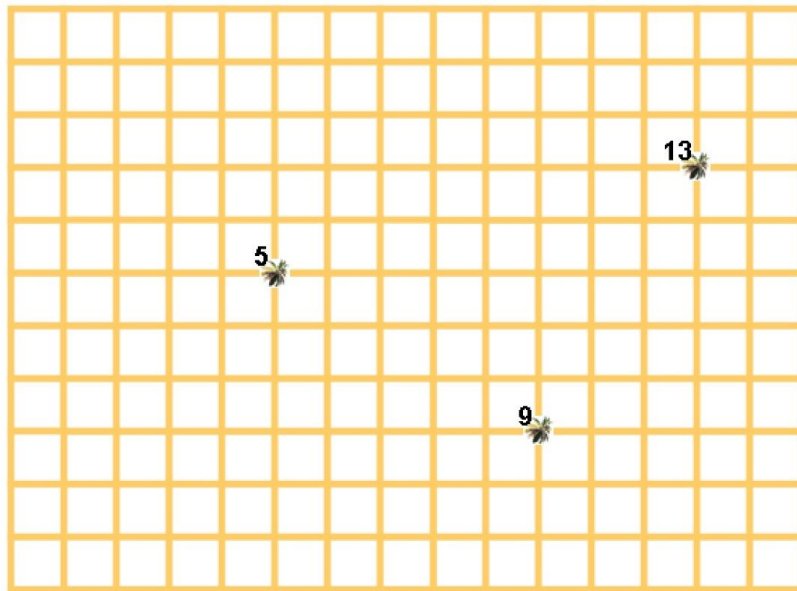
## Question:

- Where is the treasure buried?

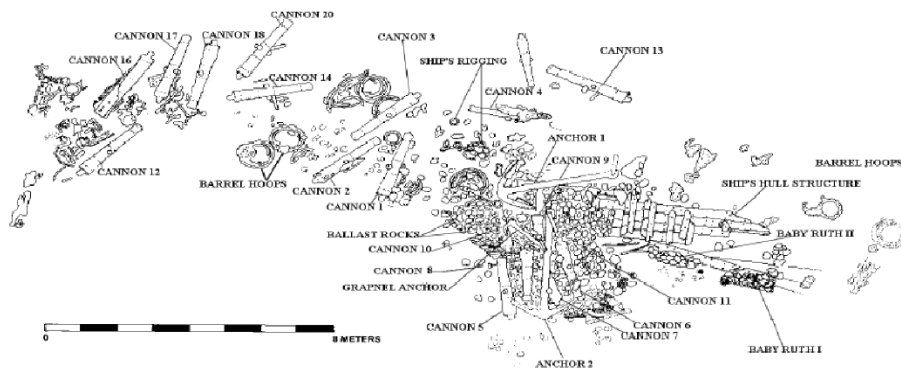


## Extensions:

- Is the writer of the diary correct that no single man had enough information to find the treasure?
- If one of the men (Louis, Ben & Chris) was swept overboard, could the other two find the treasure?
- Hide a treasure and write down similar instructions for finding it using three strings and 6 flags.
- If you had the instructions, but didn't know the stride length of Blackbeard, how would you search for the treasure?
- If there were three palm trees, Blackbeard could have recorded the position of the treasure by measuring its distance from each tree. (Would 2 trees be enough?) Each tree below is marked its distance from the treasure. Where is it?



Even though the diary quoted above is probably a forgery, there is historical information about Blackbeard. Near the end of his 3 years of criminal life, Blackbeard had 300 pirates under his command. They sailed around in three sloops (small ships) and a 40-cannon ship that they had captured and renamed "Queen Anne's revenge". Blackbeard was so greedy that he didn't want to split up his loot with all 300 men. He probably solved his problem by deliberately running "Queen Anne's revenge" and one of the sloops onto a sand bar and then taking off with about 40 men and most of the loot in one of the sloops.



Underwater archaeologists are exploring the wreck of "Queen Anne's revenge". You can read more about their work and the history of Blackbeard at [www.ah.dcr.state.nc.us/qar/](http://www.ah.dcr.state.nc.us/qar/)



*Sundance Elementary students search for treasure*

### **The Math in This Problem:**

This problem explores the geometric world of working with coordinates, formulating linear equations using these coordinates, and solving for points on the graph given these equations. In this puzzle, students are given a fun scenario dealing with finding out where a pirate's treasure has been buried. They will develop a basic understanding of applied mathematics and discover that these fundamental principles are applicable to real-life situations.