STUDENT COMPANION

NAME: _____

THE HANDSHAKES

Extend 1 Your Thinking

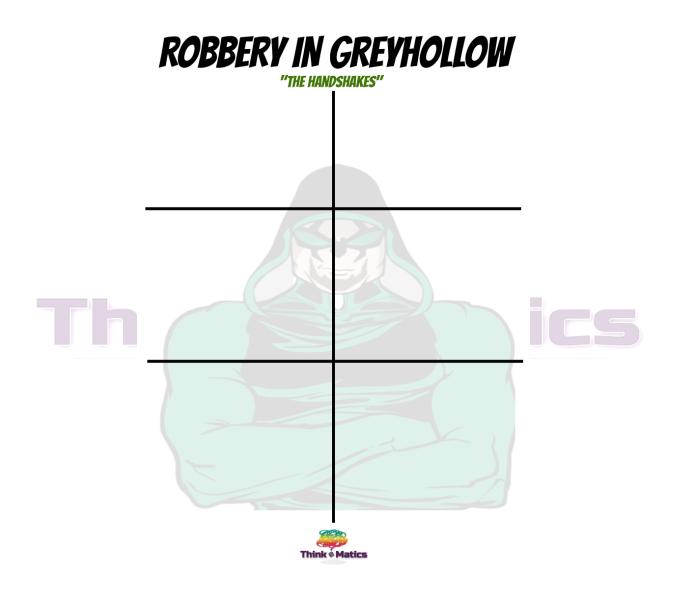**How many distinct handshakes were made if each of the five people shook each other's hand once and only once? Explain how you ascertained your solution.**

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Construct a vertex-edge graph to model the number of handshakes made.

EXTEND YOUR THINKING 1: "THE HANDSHAKES"

How many ways (strategies) can you use to determine the total number of handshakes for (n) number of guests at The Silk Shadow's Table?

ROBBERY IN GREYHOLLOW
"THE HANDSHAKES"

Think Matics

If there are as many possible outcomes as there are distinguished guests, how many guests were being honored at the banquet? Explain how you ascertained your solution. Be sure to show your computation on how you determined your solution.

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EXTEND YOUR THINKING 2: "THE KEY TO THE CITY"

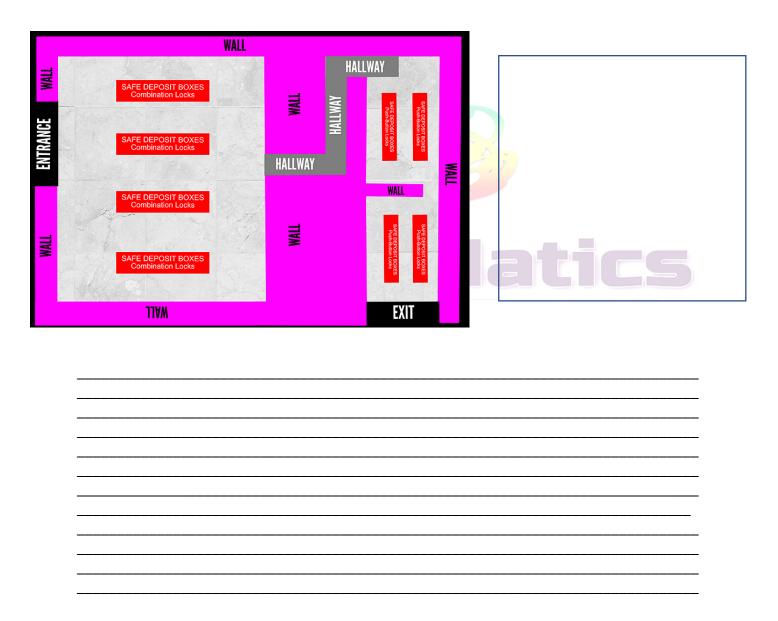**What if the order of the numbers on the lottery ticket did not matter? How would this change the results of the lottery?**

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EXTEND YOUR THINKING 2: "THE KEY TO THE CITY"

Higher Order Thinking Question

What would you do if you were awarded the "Key to the City"? If you are not sure the meaning of the term "Key to the City", please utilize your resources and research the topic before you write your response.

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Extend 3 Your Thinking

THE VAULT

How many paths are there to get from the entrance to the exit of the vault? Explain how you ascertained the number of paths.

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Extend 4 Your Thinking

THE LOCKS

Which type of lock do you think offers a higher level of security? Explain your reasoning.

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What is the total number of possible combinations for the push-button lock? Show how you determined the number of combinations.

EXTEND YOUR THINKING 4: "THE LOCKS" continued

What is the total number of combinations for the combination lock? Show how you determined the number of combinations.

After determining how many possible combinations are available for each lock and assuming the crook does not know the combinations, what type of lock on the safe deposit box was broken into? Explain.

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Extend
5
Your Thinking

City of Skullzton
H E ? ???
THE CITY THAT DOES NOT SLEEP

The eyewitness recalled that the next letter on the license plate may have been the letter X. If this is true, how does this help narrow down the search? How many fewer plates license plates would the police have to run a search on if they knew the first three letters?

EXTEND YOUR THINKING 5: "THE PLATES" continued

If it takes 1/10 of a second to run a search on 1000 plates, how long would it take to run a search for both scenarios? How much time could the police save if they knew for the next letter on license plate was absolutely the letter X?

EXTEND YOUR THINKING 5: "THE PLATES" continued

Higher Order Thinking Question

Why was it crucial for the eyewitness to know some of the license plate?

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How many license plates are available in the City of Greyhollow? How long would it take to run a search on all the license plates?

Construct a representation showing the possible sketches that can be created based on the choices presented by the police sketch artist. Explain how you determined the number of police sketches that could be designed.

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Extend
7
Your Thinking

SO WHODUNNIT?

So who did commit the robbery? Was it Silk Shadow's archnemesis The Phantom Hex? The license plate surely points us in that direction. Was it another of Skullzton 's villains? Was it an ordinary citizen? Now it is your turn. Write the ending to The Robbery in Skullzton. Be creative. Maybe you can write a math story problem to figure out whodunnit. Enjoy!

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