**Codebusters B Baltimore League – EXAM**



2021 Johns Hopkins Invitational

Team Number (on your wristband):

Team/School Name:

No abbreviations / PRINT LEGIBLY

Student Names (First & Last): PRINT LEGIBLY

1.

2.

3.

Total Points Possible: **2775**

Total Points Earned:

Team Number: School Name:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Question** | **Value** | **Incorrect letters** | **Deduction** | **Score** |
| Timed | 200 |  |  |  |
| 1 | 125 |  |  |  |
| 2 | 100 |  |  |  |
| 3 | 250 |  |  |  |
| 4 | 350 |  |  |  |
| 5 | 150 |  |  |  |
| 6 | 300 |  |  |  |
| 7 | 150 |  |  |  |
| 8 | 350 |  |  |  |
| 9 | 600 |  |  |  |
| 10 | 200 |  |  |  |
| **Bonus** |  |  | |  |
| **Final Score** |  | | | |

The following tables might be useful during the event.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| **A** | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| **B** | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A |
| **C** | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B |
| **D** | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C |
| **E** | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D |
| **F** | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E |
| **G** | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F |
| **H** | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G |
| **I** | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H |
| **J** | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I |
| **K** | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J |
| **L** | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K |
| **M** | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L |
| **N** | N | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M |
| **O** | O | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
| **P** | P | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| **Q** | Q | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P |
| **R** | R | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q |
| **S** | S | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R |
| **T** | T | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S |
| **U** | U | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T |
| **V** | V | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U |
| **W** | W | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V |
| **X** | X | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W |
| **Y** | Y | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X |
| **Z** | Z | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| Z | Y | X | W | V | U | T | S | R | Q | P | O | N | M | L | K | J | I | H | G | F | E | D | C | B | A |

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 3 | 5 | 7 | 9 | 11 | 15 | 17 | 19 | 21 | 23 | 25 |
| 1 | 9 | 21 | 15 | 3 | 19 | 7 | 23 | 11 | 5 | 17 | 25 |

|  |  |
| --- | --- |
| **AAAAA** | A |
| **AAAAB** | B |
| **AAABA** | C |
| **AAABB** | D |
| **AABAA** | E |
| **AABAB** | F |

|  |  |
| --- | --- |
| **AABBA** | G |
| **AABBB** | H |
| **ABAAA** | I/J |
| **ABAAB** | K |
| **ABABA** | L |
| **ABABB** | M |

|  |  |
| --- | --- |
| **ABBAA** | N |
| **ABBAB** | O |
| **ABBBA** | P |
| **ABBBB** | Q |
| **BAAAA** | R |
| **BAAAB** | S |

|  |  |
| --- | --- |
| **BAABA** | T |
| **BAABB** | U/V |
| **BABAA** | W |
| **BABAB** | X |
| **BABBA** | Y |
| **BABBB** | Z |

# Frequency Table of English letters:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E | - | 12.51% | S | - | 6.54% | C | - | 3.06% | G | - | 1.96% | K | - | 0.67% |
| T | - | 9.25% | R | - | 6.12% | U | - | 2.71% | W | - | 1.92% | X | - | 0.19% |
| A | - | 8.04% | H | - | 5.49% | M | - | 2.53% | Y | - | 1.73% | J | - | 0.16% |
| O | - | 7.60% | L | - | 4.14% | F | - | 2.30% | B | - | 1.54% | Q | - | 0.11% |
| I | - | 7.26% | D | - | 3.99% | P | - | 2.00% | V | - | 0.99% | Z | - | 0.09% |
| N | - | 7.09% |  |  |  |  |  |  |  |  |  |  |  |  |

Frequency Table of Spanish letters:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E | - | 14.08% | I | - | 5.98% | M | - | 3.08% | Y | - | 1.09% | Z | - | 0.47% |
| A | - | 12.16% | L | - | 5.24% | P | - | 2.89% | V | - | 1.05% | N | - | 0.17% |
| O | - | 9.20% | D | - | 4.67% | B | - | 1.49% | G | - | 1.00% | X | - | 0.14% |
| S | - | 7.20% | T | - | 4.60% | H | - | 1.18% | F | - | 0.69% | K | - | 0.11% |
| N | - | 6.83% | U | - | 4.69% | Q | - | 1.11% | J | - | 0.52% | W | - | 0.04% |
| R | - | 6.41% | C | - | 3.87% |  |  |  |  |  |  |  |  |  |

For the purposes of cryptograms it is customary to treat n and fi as distinct letters, but a and a are the same letter. Likewise for e and e, and i and f. In other words, all the accent marks get amputated when working with cryptograms. Also, while some older spanish dictionaries consider ch, ll, and rr, to be their own letters-this has fallen out of modern usage. Accordingly, "burro" is considered as fve letters: "b-u-r-r-o" and not as four letters "b-u-rr-o."

# Morse Code:

|  |  |
| --- | --- |
| A | •- |
| B | -••• |
| C | -•-• |
| D | -•• |
| E | • |

|  |  |
| --- | --- |
| F | ••-• |
| G | --• |
| H | •••• |
| I | •• |
| J | •--- |

|  |  |
| --- | --- |
| K | -•- |
| L | •-•• |
| M | -- |
| N | -• |
| 0 | --- |

|  |  |
| --- | --- |
| p | •--• |
| Q | --•- |
| R | •-• |
| s | ••• |
| T | - |

|  |  |
| --- | --- |
| u | ••- |
| V | •••- |
| w | •-- |
| X | -••- |
| y | -•-- |
| z | --•• |

|  |  |
| --- | --- |
| 0 | ----- |
| 1 | •---- |

|  |  |
| --- | --- |
| 2 | ••--- |
| 3 | •••-- |

|  |  |
| --- | --- |
| 4 | ••••- |
| 5 | ••••• |

|  |  |
| --- | --- |
| 6 | -•••• |
| 7 | --••• |

|  |  |
| --- | --- |
| 8 | ---•• |
| 9 | ----• |

|  |  |
| --- | --- |
| • | E |
| •• | I |
| ••• | s |
| •••• | H |
| -••• | B |
| ----- | 0 |
| ••••• | 5 |

|  |  |
| --- | --- |
| - | T |
| •- | A |
| ••- | u |
| •••- | V |
| -••- | X |
| •---- | 1 |
| -•••• | 6 |

|  |  |
| --- | --- |
| -• | N |
| •-• | R |
| ••-• | F |
| -•-• | C |
| ••--- | 2 |
| --••• | 7 |

|  |  |
| --- | --- |
| -- | M |
| •-- | w |
| •-•• | L |
| -•-- | y |
| •••-- | 3 |
| ---•• | 8 |

|  |  |
| --- | --- |
| -•• | D |
| •--• | p |
| --•• | z |
| ••••- | 4 |
| ----• | 9 |

|  |  |
| --- | --- |
| -•- | K |
| •--- | J |
| --•- | Q |

G

--•

0

---

Team Number: School Name:

Codebusters B Baltimore League JHs0I school:

Timed Question **[200 points]** solve this aristocrat to reveal a quote from Mr. Krabs. when you have solved it, raise your hand so that the time

can be recorded and the solution checked.

## HU YSQNN OUFUB RUOZ Q PJUYC UFUO CSU AKYC BVRVWJNKJY

**BUIJUYC.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| **Frequency** | 1 | 3 | 4 |  |  | 2 |  | 1 | 1 | 4 | 2 |  |  | 3 | 3 | 1 | 2 | 2 | 2 |  | 10 | 2 | 1 |  | 5 | 1 |
| **Replacement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Team Number: School Name:

Codebusters B Baltimore League JHs0I

1. **[125 points]** solve this Caesar Cipher to reveal a quote from *To Kill a Mockingbird*

.

|  |  |  |
| --- | --- | --- |
| G | W | C |
|  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Z | I | Z | M | T | G |
|  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| E | Q | V |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| J | C | B |
|  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | W | U | M | B | Q | U | M | A |
|  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| G | W | C |
|  |  |  |

|  |  |
| --- | --- |
| L | W |
|  |  |

.

1. **[100 points]** Decode this lyric from a classic holiday song using the Atbash Cipher

I I

Z

H

|  |  |
| --- | --- |
| R | G |
|  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Y | V | T | R | M | M | R | M | T |
|  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| G | L |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| O | L | L | P |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| O | L | G |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| O | R | P | V |
|  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | S | I | R | H | G | N | Z | H |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| V | E | V | I | B | D | S | V | I | V |
|  |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| B | L | F |
|  |  |  |

|  |  |
| --- | --- |
| T | L |
|  |  |

.

.

Team Number: School Name:

Codebusters B Baltimore League JHs0I school:

1. **[250 points]** Decode this quote from primatologist Jane Goodall using the Vigenere Cipher with a key of VERM0NT

,

V

|  |  |  |  |
| --- | --- | --- | --- |
| R | L | R | F |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| M | B | N |
|  |  |  |

|  |  |
| --- | --- |
| Y | S |
|  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| D | M | Y | R | L |
|  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| H | Z | R | T | R | K | Z | R | T | Q |
|  |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| O | A | W |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| T | S | L |
|  |  |  |

,

|  |  |  |  |
| --- | --- | --- | --- |
| T | O | I | X |
|  |  |  |  |

|  |  |
| --- | --- |
| O | S |
|  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| U | Q | Q | V | W | Z |
|  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| A | Y | M | H |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| X | B | I | H |
|  |  |  |  |

|  |  |
| --- | --- |
| F | R |
|  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| R | V | Y | A | I | I | Q | B | P | X |
|  |  |  |  |  |  |  |  |  |  |

.

|  |  |  |
| --- | --- | --- |
| T | S | L |
|  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| I | O | A | M |
|  |  |  |  |

|  |  |
| --- | --- |
| O | S |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| D | M | Y | R |
|  |  |  |  |

.

1. **[350 points]** solve this aristocrat encoded with a K2 alphabet to reveal a quote from *Shrek*

## RTKPK'Q Z QRZHF LM MPKQTGX IZEK VZMMGKQ BJ RTK

**IBEEGK LM RTK MLPKQR!**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Replacement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **K2** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| **Frequency** |  | 2 |  |  | 3 | 1 | 3 | 1 | 2 | 1 | 9 | 3 | 6 |  |  | 3 | 5 | 5 |  | 4 |  | 1 |  | 1 |  | 4 |

Team Number: School Name:

Codebusters B Baltimore League JHs0I

1. **[150 points]** Encode this quote from the philosopher plato using a Caesar Cipher with a shift of 17

|  |  |  |
| --- | --- | --- |
| Y | O | U |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| C | A | N |
|  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| D | I | S | C | O | V | E | R |
|  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| M | O | R | E |
|  |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| A | B | O | U | T |
|  |  |  |  |  |

A

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| P | E | R | S | O | N |
|  |  |  |  |  |  |

|  |  |
| --- | --- |
| I | N |
|  |  |

|  |  |
| --- | --- |
| A | N |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| H | O | U | R |
|  |  |  |  |

|  |  |
| --- | --- |
| O | F |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| P | L | A | Y |
|  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| T | H | A | N |
|  |  |  |  |

|  |  |
| --- | --- |
| I | N |
|  |  |

A

|  |  |  |  |
| --- | --- | --- | --- |
| Y | E | A | R |
|  |  |  |  |

|  |  |
| --- | --- |
| O | F |
|  |  |

.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| C | O | N | V | E | R | S | A | T | I | O | N |
|  |  |  |  |  |  |  |  |  |  |  |  |

.

1. **[300 points]** solve this quote from Elmo which has been encoded using the Morbit Cipher (**1**=**••**, **2**=**•-**, **3**=**•x**, **4**=**-•**, **5**=**--**, **6**=**-x**, **7**=**x•**, **8**=**x-**, **9**=**xx**)

## 1 8 9 1 7 1 9 1 8 3 4 4 7 4 7 8 1 7 3 4 1 7 4 3 3

**7 5 7 1 3 3 2 3 3 8 2 6 5 6 1 6 8 2 3 2 8 3 8 4 8 5**

**9 2 6 1 8 7 1 3 8 2 6 5 6 1 6 2 3 7 3 5 7 6 5 3 1**

**8 3 2 8 7 3 5 6 4**

Team Number: School Name:

Codebusters B Baltimore League JHs0I school:

1. **[150 points]** solve this patristocrat using a K1 alphabet to reveal a classic English idiom

## NUXCZ WQGXR BTXCA NWPLK JQAIQ SKWAE KBTNA KWSJQ ABQM

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Kl** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| **Frequency** | 5 | 3 | 2 |  | 1 |  | 1 |  | 1 | 2 | 4 | 1 | 1 | 3 |  | 1 | 5 | 1 | 2 | 2 | 1 |  | 4 | 3 |  | 1 |
| **Replacement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. **[350 points]** Decode this quote from former us president Barack 0bama using the Vigenere Cipher using the key of pREz

I I

|  |  |
| --- | --- |
| X | W |
|  |  |

|  |  |  |
| --- | --- | --- |
| C | N | J |
|  |  |  |

|  |  |
| --- | --- |
| I | I |
|  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| V | P | C | O | H | C | X |
|  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| H | N | L | E |
|  |  |  |  |

|  |  |  |
| --- | --- | --- |
| X | G | T |
|  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| I | M | F | W | K |
|  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| T | Z | I | Y |
|  |  |  |  |

I ,

|  |  |  |
| --- | --- | --- |
| E | M | S |
|  |  |  |

|  |  |  |
| --- | --- | --- |
| P | S | T |
|  |  |  |

|  |  |
| --- | --- |
| G | V |
|  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A | H | A | C | M | M | V |
|  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| K | S |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| J | T | V | T |
|  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| V | P | C | O | H | C | X |
|  |  |  |  |  |  |  |

I ,

I .

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| I | U | T | E | X | T | P | C | P | X |
|  |  |  |  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| N | F | Y |
|  |  |  |

|  |  |
| --- | --- |
| K | A |
|  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| D | E | J | T |
|  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| G | V | N | V | I | I | R | H |
|  |  |  |  |  |  |  |  |

I .

Team Number: School Name:

Codebusters B Baltimore League JHs0I

1. **[600 points]** solve this Xenocrypt which is a translation of a quote from George washington into spanish

## LVT ZFUBGVT NLF VLVNT NGEFSPG LV FUUGU VLVNT ZUGIG

**VTRT VLFHG.**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** | **K** | **L** | **M** | **N** | **N** | **O** | **P** | **Q** | **R** | **S** | **T** | **U** | **V** | **W** | **X** | **Y** | **Z** |
| **Frequency** |  | 1 |  |  | 1 | 5 | 7 | 1 | 1 |  |  | 6 |  | 1 | 3 |  | 1 |  | 1 | 1 | 6 | 5 | 9 |  |  |  | 2 |
| **Replacement** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. **[200 points]** Decode the Baconian Cipher to reveal a quote from basketball player LeBron James

## BAABAAABBBAABAABAAAAAABAAABAAABAAABAAAAAABABAABBABBAABA

**ABBABAABABABBBABAAAAAABAABAAABBAAABBAABBBAAAAAABAAABBBA**

**BAABBBAABAABBABABBAAABABBAABAAAAAABBAABBBAABAABAAAAAABB**

**ABBABABBAABAABAABBBABAABBBAABAAAAAAABABAABBABBAABAABBAB**

**AABABABBBABAAAAAABAABAAABBAAABBAABBBAAAAAABAAABBABABBAA**

**ABABBBABBABAAABAABAAABABAAABAB**