**Code Breaking Logic**

Consider the code below. Imagine that you’ve started to break a code, and you see that you have about half of the letters, but cannot figure out the rest. What do you do?

Try guess and Check.

1. Guess a code, say 2n + 1, that works for one letter
2. Try thhe code on another letter – if it works, try another letter! If it doesn’t, go back to step 1 and try a new code.

Show your scratch work here. Decode the message below

Label Each Guess, check

GKX KVFB HU BHLKB

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Letter | Number Value | Rule | New Number | New Letter |
| A | 1 |  |  | H |
| B | 2 |  |  |  |
| C | 3 |  |  | R |
| D | 4 |  |  |  |
| E | 5 |  |  | B |
| F | 6 |  |  |  |
| G | 7 |  |  |  |
| H | 8 |  |  | Q |
| I | 9 |  |  |  |
| J | 10 |  |  |  |
| K | 11 |  |  |  |
| L | 12 |  |  |  |
| M | 13 |  |  | P |
| N | 14 |  |  |  |
| O | 15 |  |  |  |
| P | 16 |  |  | E |
| Q | 17 |  |  |  |
| R | 18 |  |  | O |
| S | 19 |  |  |  |
| T | 20 |  |  |  |
| U | 21 |  |  | D |
| V | 22 |  |  |  |
| W | 23 |  |  | N |
| X | 24 |  |  |  |
| Y | 25 |  |  |  |
| Z | 26 |  |  |  |

Critical Thinking Question: Which letters are the best to guess and check with? Why?

Now try it one more time, but with even fewer letters!

 Show your scratch work here. Decode the message below

Label Each Guess, check

LXCDS NFC MNW WXCZ

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Letter | Number Value | Rule | New Number | New Letter |
| A | 1 |  |  | X |
| B | 2 |  |  |  |
| C | 3 |  |  | D |
| D | 4 |  |  |  |
| E | 5 |  |  | J |
| F | 6 |  |  |  |
| G | 7 |  |  |  |
| H | 8 |  |  |  |
| I | 9 |  |  |  |
| J | 10 |  |  |  |
| K | 11 |  |  |  |
| L | 12 |  |  |  |
| M | 13 |  |  | H |
| N | 14 |  |  |  |
| O | 15 |  |  |  |
| P | 16 |  |  |  |
| Q | 17 |  |  |  |
| R | 18 |  |  |  |
| S | 19 |  |  | Z |
| T | 20 |  |  |  |
| U | 21 |  |  |  |
| V | 22 |  |  |  |
| W | 23 |  |  |  |
| X | 24 |  |  |  |
| Y | 25 |  |  |  |
| Z | 26 |  |  |  |