ENCODING SYMBOLS

Characters:
- ASCII: 8 bits (256 combinations)
- UNICODE:
  - UTF-8
  - UTF-16
  - UTF-32

Size of encoding:
- $n$ bits $\rightarrow 2^n$ combinations
  - $2^n \geq |\text{Set}|$
  - Set with 3 elements
  - $2^2 = 4 \geq |\text{Set}| = 3$

Blue: 00 Red: 01
Green: 11 00 (Unused)

Example:
- \[ \text{ADD 53 28} \rightarrow 1 \text{ Symbol} \]
- \[ \text{MUL 12 11} \]

How many elements? $4 \times 256 \times 256 = 2^{18}$

Encode with AT LEAST 18 bits

Scheme:
- 24 bits
- Correspondence
  - Operands: 8 bits base 2, 6 bits all zero as "ruler bits"

ADD 53 28
\[ \text{ADD: 00, SUB: 01, MUL: 10, DIV: 11} \]
\[ \text{Operands: 8 bits base 2} \]

\[ \text{Operands: 8 bits base 2} \]

ADD 53 28
\[ \text{ADD: 00, SUB: 01, MUL: 10, DIV: 11} \]
\[ \text{Operands: 8 bits base 2} \]
\[ \text{ADD: 00, SUB: 01, MUL: 10, DIV: 11} \]
\[ \text{Operands: 8 bits base 2} \]
\[ \text{ADD: 00, SUB: 01, MUL: 10, DIV: 11} \]