Number Representation

- Example: 6.453
- 1. Expand to fraction with power of ten

$$6.453 = \frac{6.453 \times 1000}{1000} = \frac{6453}{1000}$$

- 2. Encode as vector

$$\begin{pmatrix} 6453 \\ 1000 \end{pmatrix}$$

- 3. Encrypt to ciphertext

- Example: 6.453 – but different
- What if the vector is extended?

$$\begin{pmatrix} 6453 \\ 1000 \\ 6453 \\ 0 \end{pmatrix}$$

- What if the nominator and denominator are different vectors?

$$\begin{pmatrix} 6 \\ 4 \\ 5 \\ 3 \end{pmatrix} \quad \begin{pmatrix} 1 \\ 0 \\ 0 \\ 0 \end{pmatrix}$$