n bits represent $2^n$ items
\[
\begin{align*}
10^2 & \times 10^0 \\
536 \\
\hline
5 \times 10^2, \\
3 \times 10, \\
+ 6 \times 10^0 \\
\hline
536
\end{align*}
\]

<table>
<thead>
<tr>
<th>Base</th>
<th>Digits</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>0.9</td>
</tr>
<tr>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>8</td>
<td>0.7</td>
</tr>
<tr>
<td>16</td>
<td>0.9, A, F</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>bin</th>
<th>dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>11</td>
<td>2</td>
</tr>
<tr>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Binary

2^6 2^5 2^4 2^3 2^2 2^1 2^0
1011011

\[
\begin{align*}
1 \times 2^6 &= 1 \\
1 \times 2^5 &= 2 \\
0 \times 2^4 &= 0 \\
1 \times 2^3 &= 8 \\
1 \times 2^2 &= 16 \\
0 \times 2^1 &= 0 \\
1 \times 2^0 &= 64 \\
\end{align*}
\]

\[
\frac{64}{91}
\]
$26\frac{1}{2}$

$Q$ $R$ $O$ $O$ $O$

$13\frac{1}{2}$ $10$

$6\frac{1}{2}$ $10$

$3\frac{1}{2}$ $1$

$1\frac{1}{2}$ $1$

$0$ $1$ $11010$
Octal

0  0  0  0
1  0  0  0
2  0  1  1
3  1  0  0
4  1  0  1
5  1  1  0
6  1  1  1
7  1  1  1
Hexadecimal

<table>
<thead>
<tr>
<th>Hex</th>
<th>Binary</th>
<th>Value</th>
<th>Binary Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0000</td>
<td>0</td>
<td>01010101001101</td>
</tr>
<tr>
<td>1</td>
<td>0001</td>
<td>1</td>
<td>01010101001101</td>
</tr>
<tr>
<td>2</td>
<td>0010</td>
<td>A</td>
<td>01010101001101</td>
</tr>
<tr>
<td>3</td>
<td>0011</td>
<td>B</td>
<td>01010101001101</td>
</tr>
<tr>
<td>4</td>
<td>0100</td>
<td>C</td>
<td>01010101001101</td>
</tr>
<tr>
<td>5</td>
<td>0101</td>
<td>D</td>
<td>01010101001101</td>
</tr>
<tr>
<td>6</td>
<td>0110</td>
<td>E</td>
<td>01010101001101</td>
</tr>
<tr>
<td>7</td>
<td>0111</td>
<td>F</td>
<td>01010101001101</td>
</tr>
</tbody>
</table>

\[ \text{Ox154D} \]
\[ \text{OxCAF} \]
chmod perm file

\[
\begin{array}{c}
\text{u + w} \\
\text{a + x} \\
\text{a - w}
\end{array}
\]

public dir rwxr-xr-x

[11101101]

7 5 5

chmod 755 dir

public file rw--r--r--

[6 4 4]
\[ \text{bool} = 0 \ \text{false} \]
\[ \text{else} \ \text{true} \]
\[ y = x = 3 \]