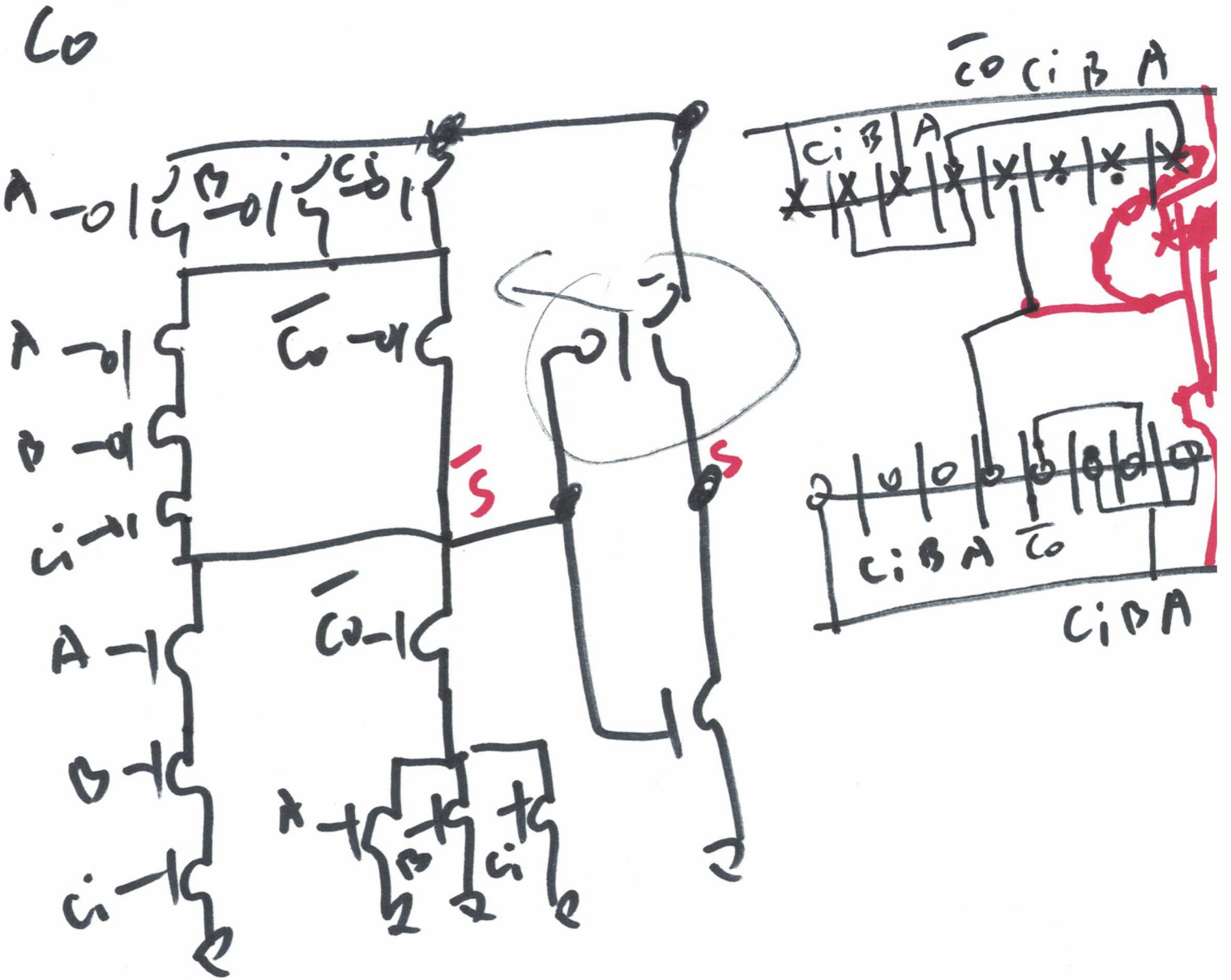
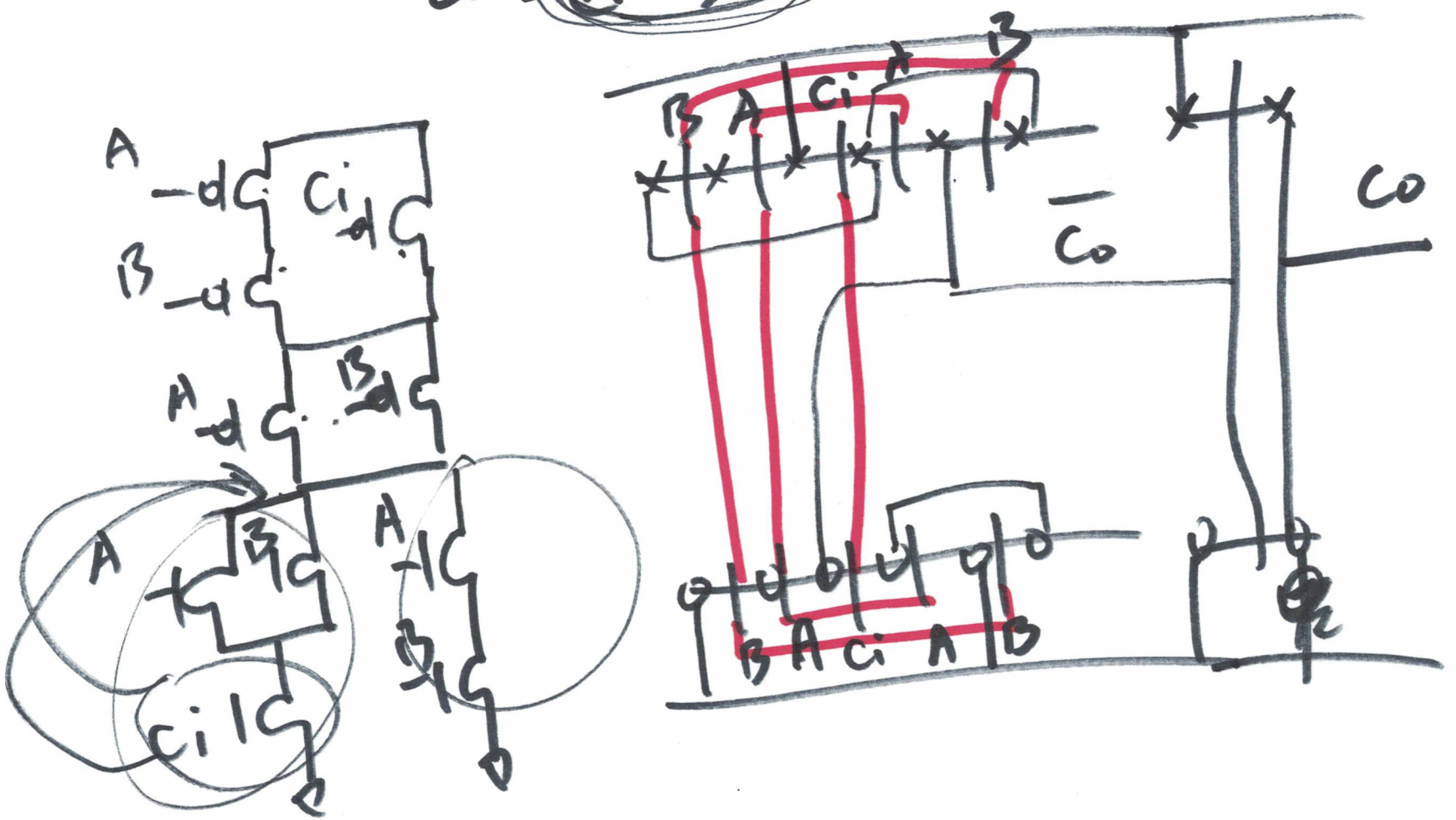
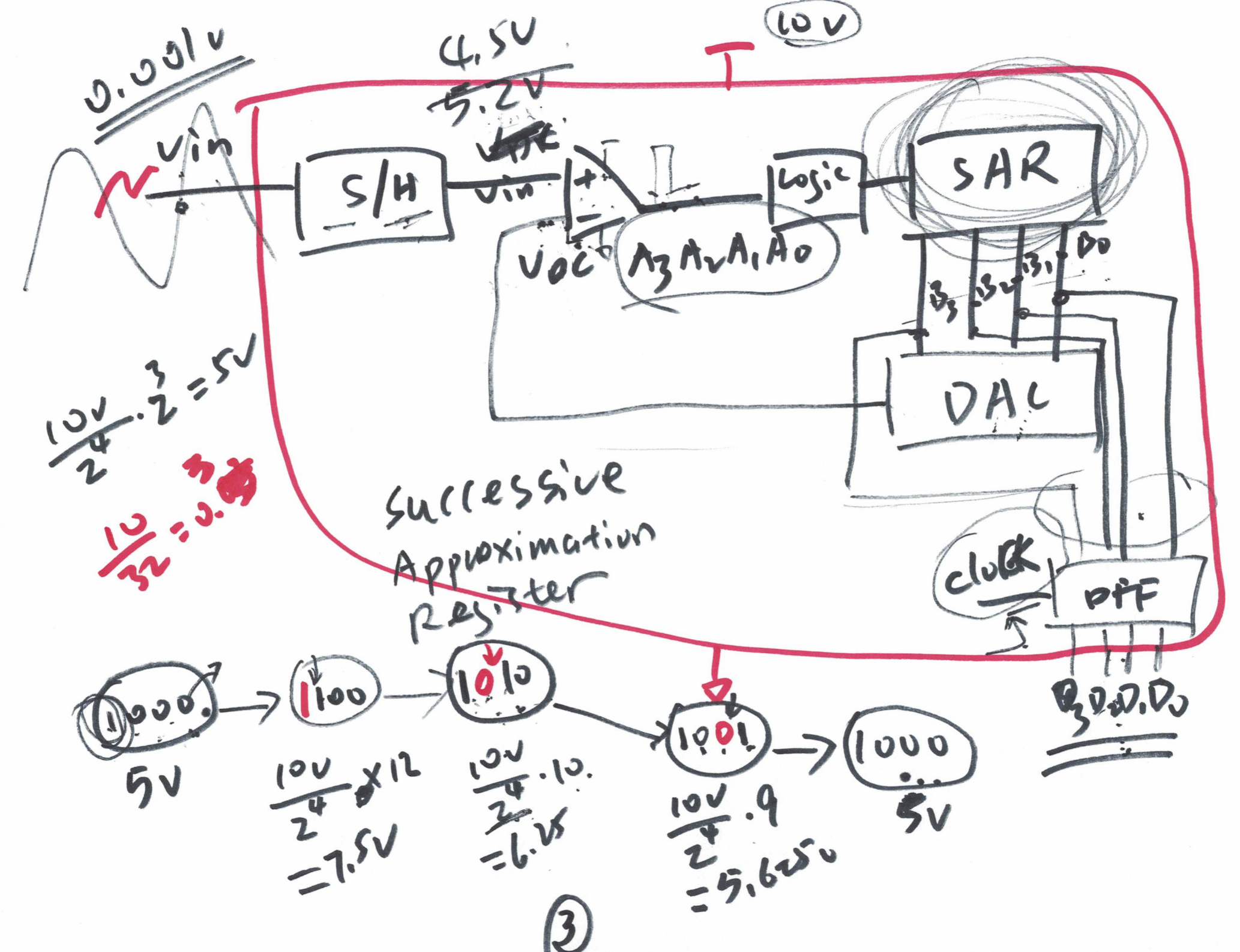
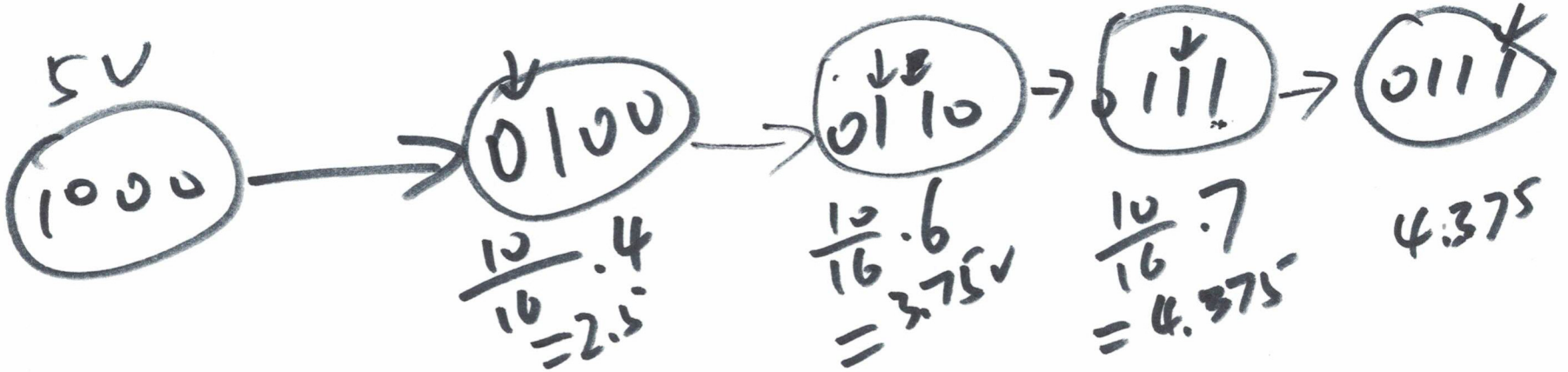

Co
A
B
Ci
S
$\overline{Co}$
$\overline{Co}$ Ci B A
Ci B A
Ci B A $\overline{Co}$
Ci B A

$$C_o = (A+B)C_i + AB$$




0.001 V
Vin
S/H
4.5V
5.2V
10 V
+
-
Voc
A3 A2 A1 A0
Logic
SAR
B3 B2 B1 B0
DAC
clock
DFF
D3 D2 D1 D0
Successive Approximation Register
1000
5V
1100
10V/2^4 x12 = 7.5V
1010
10V/2^4 .10 = 6.25
1001
10V/2^4 .9 = 5.625
1000
5V

$V_{in} = 4.5V$


5V
1000
0100
$\frac{10}{16} \cdot 4 = 2.5$
0110
$\frac{10}{16} \cdot 6 = 3.75V$
1111
$\frac{10}{16} \cdot 7 = 4.375$
0111
4.375