Exercise

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★ Convert $(475.25)_8$ to decimal.

$(4\times8^2)+(7\times8^1)+(5\times8^0)+(2\times8^{-1})+(5\times8^{-2})$

$= 256 + 56 + 5 + 0.25 + 0.078$

$= (317.32)_{10}$

★ Convert $(3102.12)_4$ to decimal.

$(3\times4^3)+(1\times4^2)+(0\times4^1)+(2\times4^0)+(1\times4^{-1})+(2\times4^{-2})$

$= 192 + 16 + 0 + 2 + 0.25 + 0.125$

$= (210.375)_{10}$

★ Convert $(9B2.1A)_{16}$ to decimal.

$(9\times16^2)+(11\times16^1)+(2\times16^0)+(1\times16^{-1})+(10\times16^{-2})$ ∵ A = 10, B = 11

$= 2304 + 176 + 2 + 0.0625 + 0.0390$

$= (2482.10)_{10}$

★ Convert decimal 214 to octal

$2\overline{)214}$ → 107, remainder 0

$2\overline{)107}$ → 53, remainder 1

$2\overline{)53}$ → 26, remainder 1

$2\overline{)26}$ → 13, remainder 0

$2\overline{)13}$ → 6, remainder 1

$2\overline{)6}$ → 3, remainder 0

$2\overline{)3}$ → 1, remainder 1

$2\overline{)1}$ → 0, remainder 1

Reading the remainders from bottom to top: $(214)_{10} = (11010110)_2$

$$
\begin{array}{r}
6 \\
2\overline{)13} \\
1 \\
\hline
3 \\
2\overline{)6} \\
0 \\
\hline
1 \\
2\overline{)3} \\
1 \\
\hline
\end{array}
$$

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