

4. (a) 9는 3의 제곱이므로 3진수의 2비트에 해당하는 수를 9진수에서는 1비트의 수로 표현

할 수 있다. 따라서 3진수를 2비트씩 끊어서 그에 해당하는 9진수로 바꾸어주면 된다.

(b)  $\begin{array}{ccccccc} \textcircled{1} & \textcircled{2} & \textcircled{0} & \textcircled{1} & \textcircled{2} & \textcircled{0} & \textcircled{1} \\ \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow & \downarrow \\ 1 & 6 & 5 & 1 & 6 & 5 & 1 \end{array} = 1651.6516_9$

5. (a)  $12.3_4 = 12_4 + 0.3_4$  012

12, 를 2진수로 변환  $\Rightarrow$  
$$\begin{array}{r} 2 \overline{) 12} \dots 0 \\ 2 \overline{) 3} \dots 1 \\ \quad 1 \end{array} \Rightarrow 110_2 \text{ 이고}$$

0.3<sub>9</sub>를 2진수로 변환  $\Rightarrow$  
$$\begin{array}{r} 0.3_9 \times 2 \\ \hline 0.6_9 \\ \hline 1.2_9 \\ \hline 2.4_9 \\ \hline 4.8_9 \\ \hline 9.6_9 \\ \hline 19.2_9 \\ \hline 38.4_9 \\ \hline 76.8_9 \\ \hline 153.6_9 \\ \hline 307.2_9 \\ \hline 614.4_9 \\ \hline 1228.8_9 \\ \hline 2457.6_9 \\ \hline 4915.2_9 \\ \hline 9830.4_9 \\ \hline 19660.8_9 \\ \hline 39321.6_9 \\ \hline 78643.2_9 \\ \hline 157286.4_9 \\ \hline 314572.8_9 \\ \hline 629145.6_9 \\ \hline 1258291.2_9 \\ \hline 2516582.4_9 \\ \hline 5033164.8_9 \\ \hline 10066329.6_9 \\ \hline 20132659.2_9 \\ \hline 40265318.4_9 \\ \hline 80530636.8_9 \\ \hline 161061273.6_9 \\ \hline 322122547.2_9 \\ \hline 644245094.4_9 \\ \hline 1288490188.8_9 \\ \hline 2576980377.6_9 \\ \hline 5153960755.2_9 \\ \hline 10307921510.4_9 \\ \hline 20615843020.8_9 \\ \hline 41231686041.6_9 \\ \hline 82463372083.2_9 \\ \hline 164926744166.4_9 \\ \hline 329853488332.8_9 \\ \hline 659706976665.6_9 \\ \hline 1319413953331.2_9 \\ \hline 2638827906662.4_9 \\ \hline 5277655813324.8_9 \\ \hline 10555311626649.6_9 \\ \hline 21110623253299.2_9 \\ \hline 42221246506598.4_9 \\ \hline 84442493013196.8_9 \\ \hline 168884986026393.6_9 \\ \hline 337769972052787.2_9 \\ \hline 675539944105574.4_9 \\ \hline 1351079888211148.8_9 \\ \hline 2702159776422297.6_9 \\ \hline 5404319552844595.2_9 \\ \hline 10808639105689190.4_9 \\ \hline 21617278211378380.8_9 \\ \hline 43234556422756761.6_9 \\ \hline 86469112845513523.2_9 \\ \hline 172938225691027046.4_9 \\ \hline 345876451382054092.8_9 \\ \hline 691752902764108185.6_9 \\ \hline 1383505805528216371.2_9 \\ \hline 2767011611056432742.4_9 \\ \hline 5534023222112865484.8_9 \\ \hline 11068046444225730969.6_9 \\ \hline 22136092888451461939.2_9 \\ \hline 44272185776902923878.4_9 \\ \hline 88544371553805847756.8_9 \\ \hline 177088743107611695513.6_9 \\ \hline 354177486215223391027.2_9 \\ \hline 708354972430446782054.4_9 \\ \hline 1416709944860893564108.8_9 \\ \hline 2833419889721787128217.6_9 \\ \hline 5666839779443574256435.2_9 \\ \hline 11333679558887148512870.4_9 \\ \hline 22667359117774297025740.8_9 \\ \hline 45334718235548594051481.6_9 \\ \hline 90669436471097188102963.2_9 \\ \hline 181338872942194376205926.4_9 \\ \hline 362677745884388752411852.8_9 \\ \hline 725355491768777504823705.6_9 \\ \hline 1450710983537555009647411.2_9 \\ \hline 2901421967075110019294822.4_9 \\ \hline 5802843934150220038589644.8_9 \\ \hline 11605687868300440077179289.6_9 \\ \hline 23211375736600880154358579.2_9 \\ \hline 46422751473201760308717158.4_9 \\ \hline 92845502946403520617434316.8_9 \\ \hline 185691005892807041234868633.6_9 \\ \hline 371382011785614082469737267.2_9 \\ \hline 742764023571228164939474534.4_9 \\ \hline 1485528047142456329878949068.8_9 \\ \hline 2971056094284912659757898137.6_9 \\ \hline 5942112188569825319515796275.2_9 \\ \hline 11884224377139650639031592550.4_9 \\ \hline 23768448754279301278063185100.8_9 \\ \hline 47536897508558602556126370201.6_9 \\ \hline 95073795017117205112252740403.2_9 \\ \hline 190147590034234410224505480806.4_9 \\ \hline 380295180068468820449010961612.8_9 \\ \hline 760590360136937640898021923225.6_9 \\ \hline 1521180720273875281796043846451.2_9 \\ \hline 3042361440547750563592087692902.4_9 \\ \hline 6084722881095501127184175385804.8_9 \\ \hline 12169445762191002254368350771609.6_9 \\ \hline 24338891524382004508736701543219.2_9 \\ \hline 48677783048764009017473403086438.4_9 \\ \hline 97355566097528018034946806172876.8_9 \\ \hline 194711132195056036069893612345753.6_9 \\ \hline 389422264390112072139787224691507.2_9 \\ \hline 778844528780224144279574449383014.4_9 \\ \hline 1557689057560448288559148898766028.8_9 \\ \hline 3115378115120896577118297797532057.6_9 \\ \hline 6230756230241793154236595595064115.2_9 \\ \hline 12461512460483586308473191190128230.4_9 \\ \hline 24923024920967172616946382380256460.8_9 \\ \hline 49846049841934345233892764760512921.6_9 \\ \hline 99692099683868690467785529521025843.2_9 \\ \hline 199384199367737380935571059042051686.4_9 \\ \hline 398768398735474761871142118084103372.8_9 \\ \hline 797536797470949523742284236168206745.6_9 \\ \hline 1595073594941899047484568472336413491.2_9 \\ \hline 3190147189883798094969136944672826982.4_9 \\ \hline 6380294379767596189938273889345653964.8_9 \\ \hline 12760588759535192379876547778691307929.6_9 \\ \hline 25521177519070384759753095557382615859.2_9 \\ \hline 51042355038140769519506191114765231718.4_9 \\ \hline 102084710076281539039012382229530463436.8_9 \\ \hline 204169420152563078078024764459060926873.6_9 \\ \hline 408338840305126156156049528918121853747.2_9 \\ \hline 816677680610252312312099057836243707494.4_9 \\ \hline 1633355361220504624624198115672487414988.8_9 \\ \hline 3266710722441009249248396231344974829977.6_9 \\ \hline 6533421444882018498496792462689949659955.2_9 \\ \hline 13066842889764036996993584925379899319910.4_9 \\ \hline 26133685779528073993987169850759798639820.8_9 \\ \hline 522673715590561479$$

(b)  $123.4_5 = 123_5 + 0.4_5$  이고

$123_5$  를 2진수로 변환  $\Rightarrow$ 

$$\begin{array}{r}
 2 \overline{) 123} \dots 0 \\
 2 \overline{) 34} \dots 1 \\
 2 \overline{) 14} \dots 1 \\
 2 \overline{) 4} \dots 1 \\
 2 \overline{) 2} \dots 0 \\
 \hline
 100110_2
 \end{array}$$

$0.4_5$   $\frac{2}{5}$  2진수로 변환  $\Rightarrow$

$0.4_5$	$\times 2$	$1$
<hr/>		
$(1).3_5$	$\times 2$	$1$
<hr/>		
$(1).1$	$\times 2$	$0$
<hr/>		
$(0).2$	$\times 2$	$0$
<hr/>		
$(0).4$	$\times 2$	$1$
<hr/>		