

Recovery Learning

Name:
STD VI

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Mathematics

Converting Base 8 to Base 10

Step 1: List the digits in order, as they appear in the number they've given.

Step 2: Then, in another row, count these digits from off the **RIGHT**, starting with zero.

*Reminder: The first row above (labelled "digits") contains the digits from the binary number; the second row (labelled "numbering") contains the power of 8 (the base) corresponding to each digit.

Example 1: 159_8 to base $_{10}$

Step 1:

Digits	1	5	9
numbering	2	1	0

Step 2: $1 \times 8^2 + 5 \times 8^1 + 9 \times 8^0$

Step 3: $1 \times 64 + 5 \times 8 + 9 \times 1$

Step 4: $64 + 40 + 9$

Step 5: 113

Ans= $159_8 = 113_{10}$

Example 2: 362_8 to base $_{10}$

Step 1:

Digits	3	6	2
numbering	2	1	0

Step 2: $3 \times 8^2 + 6 \times 8^1 + 2 \times 8^0$

Step 3: $3 \times 64 + 6 \times 8 + 2 \times 1$

Step 4: $192 + 48 + 2$

Step 5: 256

Ans= $362_8 = 256_{10}$

Activity

Convert these numbers from Base 10 to Base 2. Show **ALL** working.

1) $45_{10} =$ _____ $_{10}$

2) $75_{10} =$ _____ $_{10}$

3) $165_{10} =$ _____ $_{10}$

4) $1083_{10} =$ _____ $_{10}$

5) $2371_{10} =$ _____ $_{10}$