Recovery Learning

Name: St.Peter Claver School
STD VI January_____, 2022

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.
$8^1=8$ Rule:Eight to the power of 1 is **eight.** $8^0= 1$ Rule: Any number to the power of 0 is **one.**

Example 1: 158_8 to base $_{10}$
Step 1:

Digits	1	5	9
numbering	2	1	0

Step 2:$1\times8^2 + 5\times8^1 + 9\text{x } 8^0$
Step 3:$1\times64 + 5\text{x } 8 + 9 \text{ x } 1$
Step 4: $64 + 40 + 9$
Step 5:112
Ans= $158_8 = 112_{10}$

Example 2: 362_8 to base $_{10}$
Step 1:

Digits	3	6	2
numbering	2	1	0

Step 2: $3\text{x } 8^2 + 6\text{x } 8^1 + 2\text{x}8^0$
Step 3: $3\text{x}64 + 6 \text{ x } 8 + 2 \text{ x } 1$
Step 4: $192 + 48 + 2$
Step 5: 242
Ans= $362_8 = 242_{10}$

Activity 2

Convert these numbers from Base $_8$ to Base $_{10}$. Show **ALL** working.

1)45_8= _____$_{10}$
2)75_8= _____ $_{10}$
3)165_8= _____$_{10}$
4) 1083_8= _____$_{10}$
5) 2371_8= _____$_{10}$

LIVEWORKSHEETS