

Question 1: Convert 1002_8 to hexadecimal

Solution:

The given number is 1002_8

$$1002_8 = (1 * 8^3) + (0 * 8^2) + (0 * 8^1) + (2 * 8^0)$$

$$= 1 * 512 + 0 * 64 + 0 * 8 + 2 * 1$$

$$= 512 + 0 + 0 + 2$$

$$= 514(\text{decimal number})$$

Now we convert the above decimal to hexadecimal

$$16 \overline{) 514}$$

$$16 \overline{) 32} \quad \text{--} 2$$

$$2 \quad \text{--} 0$$

The hexadecimal number is 202

$$\text{Answer: } 1002_8 = 202_{16}$$

Question 2: Convert 100_8 to hexadecimal

Solution:

The given number is 100_8

$$100_8 = (1 * 8^2) + (0 * 8^1) + (0 * 8^0)$$

$$= 1 * 64 + 0 * 8 + 0 * 1$$

$$= 64 + 0 + 0$$

$$= 64(\text{decimal number})$$

Now we convert the above decimal to hexadecimal

$$16 \overline{) 64}$$

$$16 \overline{) 4} \text{ --} 0$$

$$16 \overline{) 0} \text{ --} 4$$

The hexadecimal number is 40

$$\text{Answer: } 100_8 = 40_{16}$$

Question 3: Convert 15_8 to hexadecimal

Solution:

The given number is 15_8

$$15_8 = (1 * 8^1) + (5 * 8^0)$$

$$= 1 * 8 + 5 * 1$$

$$= 8 + 5$$

$$= 13(\text{decimal number})$$

Now we convert the above decimal to hexadecimal

13 is less than 16 so the equivalent hexadecimal number is D

The hexadecimal number is D

$$\text{Answer: } 15_8 = D_{16}$$