Base64(“Man”)=

Step 1: ASCII values of each character

- **M**: ASCII value is 77
- **a**: ASCII value is 97
- **n**: ASCII value is 110

Step 2: Convert each ASCII value to binary

- **M (77)** = 01001101
- **a (97)** = 01100001
- **n (110)** = 01101110

Final Binary Representation

- "Man" in binary is: 01001101 01100001 01101110

Man= **01001101 01100001 01101110**

Now convert **01001101 01100001 01101110** to **base64**

Step 1: Group the binary into 6-bit chunks

010011 010110 000101 101110

Step 2: Convert each 6-bit chunk to decimal

- 010011 = 19
- 010110 = 22
- 000101 = 5
- 101110 = 46

Step 3: Map decimal values to Base64 characters

19 = T 22 = W 5 = F 46 = u

TWFu

Base64(“Ma”)=

Step 1: ASCII values of each character

- **M**: ASCII value is 77
- **a**: ASCII value is 97

Step 2: Convert each ASCII value to binary

- **M (77)** = 01001101
- **a (97)** = 01100001

Final Binary Representation

- "Ma" in binary is: 01001101 01100001

Ma= **0100110101100001**

Now convert **01001101 01100001** to base64

Step 1: Group the binary into 6-bit chunks(Pad with zeros if necessary, so each chunk contains exactly 6 bits)

010011 010110 000100

Step 2: Convert each 6-bit chunk to decimal

- 010011 = 19
- 010110 = 22
- 000100 = 4

Step 3: Map decimal values to Base64 characters

19 = T 22 = W 4 = E

T	W	E	=

As a result, we need to add an = character to ensure the Base64 string length is a multiple of 4. [number of characters%4=0]