

Answers 2

1. Convert these binary numbers to decimal (base 2 to base 10):

a) 10101010_2 b) 11110000_2 c) 0_2

Answers: 170, 240, 0

2. Convert these decimal numbers to binary (base 10 to base 2):

a) 3000_{10} b) 2048_{10}

Answers: 101110111000, 100000000000

3. Check your answers above using Python.

Examples: 1a → `int("10101010", 2)`, 2a → `bin(3000)`

4. Convert these binary numbers to hexadecimal (base 2 to base 16):

a) $1111\ 1110\ 1110\ 1101\ 1011\ 1110\ 1110\ 1111_2$ b) $1100\ 0000\ 1111\ 1111\ 1110\ 1110_2$

Answers: FEEDBEEF, COFFEE

5. Convert this hexadecimal numbers to binary (base 16 to base 2):

DECAF123₁₆

Answer: 1101 1110 1100 1010 1111 0001 0010 0011

6. Check your answers above using Python.

Examples: 4b → `hex(int("11000000111111111101110", 2))`, 5 → `bin(int("DECAF123", 16))`

7. Find the character with ASCII code 73.

Answer: 'I'

8. Convert the letter A into its ASCII code.

Answer: 65

9. What do the ASCII codes 97, 115, 99, 105, and 105 spell?

Answer: "ascii"

10. Check your answers above using Python.

Examples: `chr(73)`, `ord('A')`