

1.25 Compare the number of digits necessary to represent the following decimal numbers in binary, octal, decimal, and hexadecimal representations. You need not determine the actual representations -- just the number of required digits. For example, representing the decimal number 12 requires four digits in binary (1100 is the actual representation), two digits in octal (14), two digits in decimal (12), and one digit in hexadecimal (C).

- a. 8
- b. 60
- c. 300
- d. 1000
- e. 999,999

- a) 4 digits in binary, 2 digits in octal, 1 digit in decimal, 1 digit in hexadecimal
- b) 6 digits in binary, 2 digits in octal, 2 digits in decimal, 2 digits in hexadecimal
- c) 9 digits in binary, 3 digits in octal, 3 digits in decimal, 3 digits in hexadecimal
- d) 10 digits in binary, 4 digits in octal, 4 digits in decimal, 3 digits in hexadecimal
- e) 20 digits in binary, 7 digits in octal, 6 digits in decimal, 5 digits in hexadecimal