Q1) What is the binary number system? What symbols does it use? What is the value of the places in the binary number system?

A1) The binary number system is a base two number system, and it is based off of two symbols. The symbols that the binary system use are: 0 and 1. The value of the places in the binary number system are expressed as, z(2n-1); where z can be either 0 or 1, and n represents the position of the number so n must be a number greater than or equal to 1.

Q2) What is the decimal number system? What symbols does it use? What is the value of the places in the decimal number system?

A2) The decimal number system is a base 10 number system, and it is based off of ten symbols. The symbols that the decimal number system use are: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. The value of the places in the decimal number system are expressed as, z(10n - 1); where z can be any number from 0 to 9, and n represents the position of the number so n must be greater than or equal to 1.

Q3) What is the hexadecimal number system? What symbols does it use? What is the value of the places in the hexadecimal number system?

A3) The Hexadecimal number system is a base 16 number system, so it is based off of 16 distinct symbols. The symbols that the hexadecimal number system use are: the numbers 0 through 9, and the letters A through F. The value of the places in the hexadecimal number system are expressed as, z(16n - 1); where z can be any number from 0 through 9 or any letter from A through F, and n represents the position of the number so n must be greater than or equal to 1.

Q4) How many symbols do you think would be used in a base 7 number system? What would they be?

A4) The number of symbols that would be used in a base 7 number system are 7 distinct symbols. These symbols would be: 0, 1, 2, 3, 4, 5, 6.

Q5) Copy and complete the following chart finding the missing equivalent values (read across horizontally).

|  |  |  |
| --- | --- | --- |
| Binary | Decimal | Hexadecimal |
| 0000 0001 | 1 | 1 |
| 00001000 | 8 | 8 |
| 00010000 | 16 | 10 |
| 01000000 | 64 | 40 |
| 01001110 | 78 | 4E |
| 10011110 | 79 | 4F |
| 01011010 | 90 | 5A |
| 01100100 | 100 | 64 |
| 01111111 | 127 | 7F |
| 11111111 | 255 | FF |