

Base Conversions Tutorial

- 1 Write out the first 16 place values for binary
- 2 Write out the first 4 place values for hex
- 3 Convert the following denary numbers to binary:
 - a) 96
 - b) 37
 - c) 425
 - d) 376
 - e) 256
- 4 Convert the following binary numbers to denary:
 - a) 10110
 - b) 10101010
 - c) 101101101
 - d) 11001011
 - e) 100100111
- 5 Express the values in Q4 as hex numbers
- 6 Convert the following hex numbers to binary:
 - a) 1A7
 - b) FED
 - c) CAB
 - d) 7E
 - e) BA
- 7 Convert the following denary numbers to hex:
 - a) 524
 - b) 5678
 - c) 1024
 - d) 255
 - e) 7889
 - f) 31

Base Conversions Tutorial - Answers

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First 16 place values are as follows:

- Bit 0 = 1
- Bit 1 = 2
- Bit 2 = 4
- Bit 3 = 8
- Bit 4 = 16
- Bit 5 = 32
- Bit 6 = 64
- Bit 7 = 128
- Bit 8 = 256
- Bit 9 = 512
- Bit 10 = 1024
- Bit 11 = 2048
- Bit 12 = 4096
- Bit 13 = 8192
- Bit 14 = 16384
- Bit 15 = 32768

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First 4 place values in hex are:

- Place 0 = 1
- Place 1 = 16
- Place 2 = 256
- Place 3 = 4096

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Convert Denary to Binary:

- a) 96 1100000
- b) 37 100101
- c) 425 110101001
- d) 376 101111000
- e) 256 100000000

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Convert binary to denary:

- a) 10110 22
- b) 10101010 170
- c) 101101101 365
- d) 11001011 203
- e) 100100111 295

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Convert binary to hex:

- a) 1 0110 16
- b) 1010 1010 AA
- c) 1 0110 1101 16D
- d) 1100 1011 CB
- e) 1 0010 0111 127

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Convert hex to binary:

- a) 1A7 0001 1010 0111
- b) FED 1111 1110 1101
- c) CAB 1100 1010 1011
- d) 7E 0111 1110
- e) BA 1011 1010

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Convert hex to denary:

- a) 524 20C
- b) 5678 162E
- c) 1024 400
- d) 255 FF
- e) 7889 1ED1
- f) 31 1F