Sri Lanka Institute of Information Technology
B. Sc Degree in IT/IS/CSN, Diploma in Information Technology
Year 01 – Semester I – 2019
Mathematics for Computing (IT1030)
Tutorial 01.1

Exercise 1 • The Binary Number System

Conversion between Binary and Decimal

Convert each binary number to decimal.

1. 10
2. 01
3. 11
4. 1001
5. 0110
6. 1111
7. 1101
8. 0111
9. 1100
10. 1011
11. 0101
12. 1101 0010
13. 0110 0111
14. 1001 0011
15. 0111 0111
16. 1001 1010 1000 0010

Convert each decimal number to binary.

17. 5
18. 9
19. 2
20. 7
21. 72
22. 28
23. 93
24. 17
25. 274
26. 937
27. 118
28. 267
29. 8375
30. 2885
31. 82740
32. 72649

Convert each decimal fraction to binary. Retain 8 bits to the right of the binary point when the conversion is not exact.

33. 0.5
34. 0.25
35. 0.75
36. 0.375
37. 0.3
38. 0.8
39. 0.55
40. 0.35
41. 0.875
42. 0.4375
43. 0.3872
44. 0.8462

Convert each binary fraction to decimal.

45. 0.1
46. 0.11
47. 0.01
48. 0.011
49. 0.1001
50. 0.0111

Convert each decimal number to binary. Keep 8 bits to the right of the binary point when the conversion is not exact.

51. 5.5
52. 2.75
53. 4.375
54. 29.381
55. 948.472
56. 2847.22853

Convert each binary number to decimal.

57. 1.1
58. 10.11
59. 10.01
60. 101.011
61. 1 1001.0110 1
62. 10 1001.1001 101

Exercise 2 • The Hexadecimal Number System

Binary-Hex Conversions

Convert each binary number to hexadecimal.

1. 1101
2. 1010
3. 1001
4. 1111
5. 1001 0011
6. 0110 0111
7. 1101 1000
8. 0101 1100
9. 1001 0010 1010 0110
10. 0101 1101 0111 0001
11. 1001.0011
12. 10.0011
13. 1.0011 1
14. 101.101

Convert each hex number to binary.

15. 6F
16. B2
17. 4A
18. CC
19. 2F35
20. D213
21. 47A2
22. ABCD
23. 5.F
24. A4.E
25. 9.AA
26. 6D.7C

Decimal-Hex Conversions

Convert each hex number to decimal.

27. F2
28. 5C
29. 33
30. DF
31. 37A4
32. A3F6
33. F274
34. C721
35. 3.F
36. 22.D
37. ABC.DE
38. C.284

Convert each decimal number to hex.

39. 39
40. 13
41. 921
42. 554
43. 2741
44. 9945
45. 1736
46. 2267

Exercise 3 • The Octal Number System

Convert each binary number to octal.

1. 110
2. 010
3. 111
4. 101
5. 11 0011
6. 01 1010
7. 0110 1101
8. 1 1011 0100
9. 100 1001
10. 1100 1001

Convert each octal number to binary.

11. 26
12. 35
13. 623
14. 621
15. 5243
16. 1153
17. 63150
18. 2346