Sample Problems – In Class

1. Convert binary number **0000 1001** to decimal

2. Convert binary number **0000 1101** to decimal

3. Convert binary number **1001 1010** to decimal

4. Convert binary number **0110 1101** to decimal

5. Convert binary number **0100 1001 0110** to decimal

6. Convert decimal number **19** to binary

7. Convert decimal number **77** to binary

8. Convert decimal number **176** to binary

9. Convert decimal number **275** to binary

10. Convert hex number **2B** to decimal and also to binary

11. Convert hex number **215** to decimal and also to binary

12. Convert hex number **ABC** to decimal and also to binary

Sample Problems – In Class

Answer

work

work

1. Convert binary number **0000 1001** to decimal

1 0 0 1
8 4 2 1

8+1 = 9

2. Convert binary number **0000 1101** to decimal

1 1 0 1
8 4 2 1

8+4+1 = 13

3. Convert binary number **1001 1010** to decimal

1 0 0 1 1 0 1 0
128 64 32 16 8 4 2 1

128+16+8+2 = 154

0 1 1 0 1 1 0 1
128 64 32 16 8 4 2 1

4. Convert binary number **0110 1101** to decimal

64+32+8+4+1 = 109

5. Convert binary number **0100 1001 0110** to decimal

0 1 0 0 1 0 0 1 0 1 1 0
2048 1024 512 256 128 64 32 16 8 4 2 1

1024+128+16+4+2 = 1,174

6. Convert decimal number **19** to binary

0001 0011

16+2+1 = 19

19 → 16, 3 → 2, 1 → 1, 0 stop

7. Convert decimal number **77** to binary

0100 1101

64+8+4+1 = 77

77 → 64, 13 → 8, 5 → 4, 1 → 1, 0 stop

8. Convert decimal number **176** to binary

1011 0000

128+32+16 = 176

176 → 128, 48 → 32, 16 → 16, 0

9. Convert decimal number **275** to binary

256+16+2+1 = 275

275 → 256, 19 → 16, 3 → 2, 1 → 1, 0

0001 0001 0011

10. Convert hex number **2B** to decimal and also to binary

2 B
16 1

2×16 + B×1
32 + 11 = 43 decimal

2 → 0010
B → 1011

Binary
0010 1011

11. Convert hex number **215** to decimal and also to binary

2 1 5
256 16 1

2×256 + 1×16 + 5×1
512 + 16 + 5 = 533 decimal

2 → 0010
1 → 0001
5 → 0101
8 4 2 1

0010 0001 0101 binary

12. Convert hex number **ABC** to decimal and also to binary

A B C
256 16 1

A×256 + B×16 + C×1
10 11 12

2560 + 176 + 12
= 2748 decimal

A → 1010
B → 1011
C → 1100

1010 1011 1100 Binary