1. Convert the decimal number 250,5 to:
   1. base 4

250 : 4 = 62 sisa 2

62 : 4 = 15 sisa 2

15 : 4 = 3 sisa 3

3 : 4 = 0 sisa 3

0.5 x 4 = 2.0 ambil 2

3322.2(4)

* 1. base 8

250 : 8 = 31 sisa 2

31 : 8 = 3 sisa 7

3 : 8 = 0 sisa 3

0.5 x 8 = 4.0 ambil 4

372.4(8)

* 1. base 16

250 : 16 = 15 sisa 10

15 : 16 = 0 sisa 15

0.5 x 16 = 8.0 ambil 8

FA.8(16)

1. Conver the following decimal numbers to binary:
   1. 12.0625

12 : 2 = 6 sisa 0

6 : 2 = 3 sisa 0

3 : 2 = 1 sisa 1

1 : 2 = 0 sisa 1

0.0625 x 2 = 0.125 ambil 0

0.125 x 2 = 0.25 ambil 0

0.25 x 2 = 0.5 ambil 0

0.5 x 2 = 1.0 ambil 1

1100.001(2)

* 1. 1000

1000 : 2 = 500 sisa 0

500 : 2 = 250 sisa 0

250 : 2 = 125 sisa 0

125 : 2 = 62 sisa 1

62 : 2 = 31 sisa 0

31 : 2 = 15 sisa 1

15 : 2 = 7 sisa 1

7 : 2 = 3 sisa 1

3 : 2 = 1 sisa 1

1 : 2 = 0 sisa 1

1111101000(2)

* 1. 673,23

673 : 2 = 336 sisa 1

336 : 2 = 168 sisa 0

168 : 2 = 84 sisa 0

84 : 2 = 42 sisa 0

42 : 2 = 21 sisa 0

21 : 2 = 10 sisa 1

10 : 2 = 5 sisa 0

5 : 2 = 2 sisa 1

2 : 2 = 1 sisa 0

1 : 2 = 0 sisa 1

0.23 x 2 = 0.46 ambil 0

0.46 x 2 = 0.92 ambil 0

0.92 x 2 = 1.84 ambil 1

0.84 x 2 = 1.68 ambil 1

0.68 x 2 = 1.36 ambil 1

0.36 x 2 = 0.72 ambil 0

0.72 x 2 = 1.44 ambil 1

0.44 x 2 = 0.88 ambil 0

0.88 x 2 = 1.76 ambil 1

0.76 x 2 = 1.52 ambil 1

1010100001.0011101011.....1(2)

* 1. 1798

1798 : 2 = 899 sisa 0

899 : 2 = 449 sisa 1

449 : 2 = 224 sisa 1

224 : 2 = 112 sisa 0

112 : 2 = 56 sisa 0

56 : 2 = 28 sisa 0

28 : 2 = 14 sisa 0

14 : 2 = 7 sisa 0

7 : 2 = 3 sisa 1

3 : 2 = 1 sisa 1

1 : 2 = 0 sisa 1

11100000110(2)

1. Conver the following from the given base to the base indicated:
   1. 225.225(10) = ...(2) = ...(8) = ...(16)

225 : 2 = 112 sisa 1

112 : 2 = 56 sisa 0

56 : 2 = 28 sisa 0

28 : 2 = 14 sisa 0

14 : 2 = 7 sisa 0

7 : 2 = 3 sisa 1

3 : 2 = 1 sisa 1

1 : 2 = 0 sisa 1

0.225 x 2 = 0.45 ambil 0

0.45 x 2 = 0.9 ambil 0

0.9 x 2 = 1.8 ambil1

0.8 x 2 = 1.6 ambil1

0.6 x 2 = 1.2 ambil 1

0.2 x 2 = 0.4 ambil0

0.4 x 2 = 0.8 ambil 0

11100001.001110011(2)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 011 |  | 100 | | 001 | | . |  | 001 |  | 110 |  | 011 |
| 3 |  | 4 | | 1 | | . |  | 1 |  | 6 |  | 3 |
| 341.163(8) | | | | | | | | | | | | |
| 1110 | |  | 0001 |  | . |  | 0011 | | 1001 | | 1000 | |
| E | |  | 1 |  | . |  | 3 | | 9 | | 8 | |

E1.398(16)

* 1. 1101001.011(2) = ...(10) = ...(8) = ...(16)

1101001.011(2)

(1 x 2-3) + (1 x 2-2) +(0 x 2-1) (1 x 20) + (0 x 21) + (0 x 22) + (1 x 23) + (0 x 24)

+ (1 x 25) + (1 x 26) = 0.125 + 0.25 + 0 + 1 + 0 + 0 + 8 + 0 + 32 + 64 = 105.375(10)

001 101 001 . 011(2)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 001 | 101 | | 001 |  | . |  | 011 |
| 1 | 5 | | 1 |  | . |  | 3 |
| 151.3(8)  0110 1001 . 0110(2) | | |  |  |  |  | |
| 0110 | | 1001 |  | . |  | 0110 | |
| 6 | | 9 |  | . |  | 6 | |

69.6(16)

* 1. 623,77(8) = ...(10) = ...(2) = ...(16)
  2. 2AC5.D(16) = ...(10) = ...(8) = ...(2)

Jawab :

# A. 225.225(10) = ...(2) = ...(8) = ...(16)

# B. 1101001.011(2) = ...(10) = ...(8) = ...(16)

# C. 673.23(8) = ...(10) = ...(2) = ...(16)

(3 x 8-2) + (2 x 8-1) + (3 x 80) + (7 x 81) + (7 x 82)

= (3/64) + (2/8) + 3 + 56 + 384

## = 443.296875(10)

673.23

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 6 | 7 | 3 | . | 2 | 3 |
| 110 | 111 | 011 | . | 010 | 011 |
| 110111011.010011(2)  0001 1011 1011 . 0100 1100(2) | | |  |  |  |
| 0001 | 1011 | 1011 | . | 0100 | 1100 |
| 1 | B | B | . | 4 | C |
| 1BB.4C(16)  **D. 2AC5.D(16) = ...(10) = ...(8) = ...(2)** | | |  |  |  |
| 2 | A | C | 5 | . | D |
| 0010 | 1010 | 1100 | 0101 | . | 1101 |

## 0010101011000101.1101(2)

010 101 011 000 101.110 100(2)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 010 | 101 | 011 | 000 | 101 | . | 110 | 100 |
| 2 | 5 | 3 | 0 | 5 | . | 6 | 4 |

## 25305.64(8)

2AC5.D(16)

(2 x 163) + (10 x 162) + (12 x 161) + (5 x 160) + (13 x 16-1)

= 8192 + 2560 + 192 + 5 + (13/16)

## = 10949.8125(10)

**1.7 Ubahlah bilangan berikut ke decimal:**

a. 1001001.001(2) e. 0.342(6)

|  |  |  |
| --- | --- | --- |
| b. 12121(3) |  | f. 50(7) |
| c. 1032.2(4) |  | g. 8.3(9) |
| d. 4310(5) |  | h. 198(12) |

Jawab :

# A. 1001001.001(2)

(1 x 26) + (0 x 25) + (0 x 24) + (1 x 23) + (0 x 22) + (0 x 21) + (1 x 20) +

(0 x 2-1) + (0 x 2-2) + (1 x 2-3) = 64 + 0 + 0 + 8 + 0 + 0 + 1 + 0 + 0 + (1/8)

= 73.125(10)

# B. 12121(3)

(1 x 34) + (2 x 33) + (1 x 32) + (2 x 31) + (1 x 30) = 81 + 54 + 9 + 6 + 1

= 151(10)

# C. 1032.2(4)

(1 x 43) + (0 x 42) + (3 x 41) + (2 x 40) + (2 x 4-1) = 64 + 0 + 12 + 2 + (2/4)

= 78.5(10)

**D. 4310(5)**

(4 x 53) + (3 x 52) + (1 x 51) + (0 x 50) = 500 + 75 + 5 + 0 = 580(10)

# E. 0.342(6)

(0 x 60) + (3 x 6-1) + (4 x 6-2) + (2 x 6-3) = 0 + (3/6) + (4/36) + (2/216)

= (108/216) + (24/216) + (2/216) = 134/216 = 0.620370370370(10)

**F. 50(7)**

(5 x 71) + (0 x 70) = 35 + 0 = 35(10)

**G. 8.3(9)**

(8 x 90) + (3 x 9-1) = 8 + (3/9) = 8.33(10)

# H. 198(12)

(1 x 122) + (9 x 121) + (8 x 120) = 144 + 108 + 8 = 260(10)