1. **Slide 6**
   1. **Komplemen 7 dari (7564,43)8**

→ (84 - 8-2)10 - (7564.43)8

→ (7777.77)10 - (7564.43)8

→ (0213.34)8

* 1. **Komplemen 15 dari (0A65,7C)16**

**→** (164-16-2) - (0A65,7C)16

→ (FFFF.FF)-(0A65,7C)16

→ (F59A.85)16

1. **Slide 8**
   1. **Komplemen 10 dari (04857.43)10 ,(0.6572)10**

**→ (**99999.99)10 - (04857.43 )10

→ (95142.57)10

→ (9.9999)10 - (0.6572)10

→ (9.3428)10

* 1. **Komplemen 8 dari (7564.23)8,**

→ (7777.77)8 - (7564.23)

→ (0213.55)8

* 1. **Komplemen 2 dari (10110.101)2**

**→** (11111.111)2 - (10110.101)2

→ (01001.011)2

1. **Slide 9**
   1. **1.14**
      1. **00010000**
         1. **Komplemen 1**

→ (11111111-00010000)2

→ (11101111)2

* + - 1. **Komplemen 2**

**→** (11101111 + 00000001)2

**→** (11110000)2

* + 1. **11011010**
       1. **Komplemen 1**

**→** (11111111 - 11011010)2

→ (00100101)2

* + - 1. **Komplemen 2**

**→** (00100101 + 00000001)2

**→** (00100110)2

**iii. 10000101**

1. **Komplemen 1**

**→** (11111111 - 10000101)2

→ (01111010)2

1. **Komplemen 2**

**→** (01111010 + 00000001)2

**→** (01111011)2 **iv. 00000000**

1. **Komplemen 1**

**→** (11111111 - 00000000)2

→ (11111111)2

1. **Komplemen 2**

**→** (11111111 + 00000001)2

**→** (100000000)2

**v. 10101010**

1. **Komplemen 1**

**→** (11111111 - 10101010)2

→ (01010101)2

1. **Komplemen 2**

**→** (01010101 + 00000001)2

→ (01010110)2 **vi. 11111111**

1. **Komplemen 1**

**→** (11111111 - 11111111)2

→ (00000000)2

1. **Komplemen 2**

**→** (00000000 + 00000001)2

→ (00000001)2

1. **1.15**
   1. **25,478,036**
      1. **Komplemen 9**

**→** (99,999,999 - 25,478,036)10

→ (74,521,963)10

* + 1. **Komplemen 10**

**→** (1 +74,521,963)10

→ (74,521,964)10 **ii. 25,000,000**

* + 1. **Komplemen 9**

**→** (99,999,999 - 25,000,000)10

→ (74,999,999)10

* + 1. **Komplemen 10**

**→** (1+74,000,000)10

→ (75,000,000)10 **iii. 63, 325, 600**

* + 1. **Komplemen 9**

**→** (99,999,9999 - 63,325,600)10

→ (36,674,399)10

* + 1. **Komplemen 10**

**→** (1+36,674,399)10

→ (36,674,400)10 **iv. 00,000,000**

* + 1. **Komplemen 9**

→ (99,999,999 + 00,000,000)10

→ (99,999,999)10

* + 1. **Komplemen 10**

**→ (**99,999,999 + 1**)10**

**→ (**100,000,000**)10**

1. **1.16**
   1. **Komplemen 16 dari C3DF**

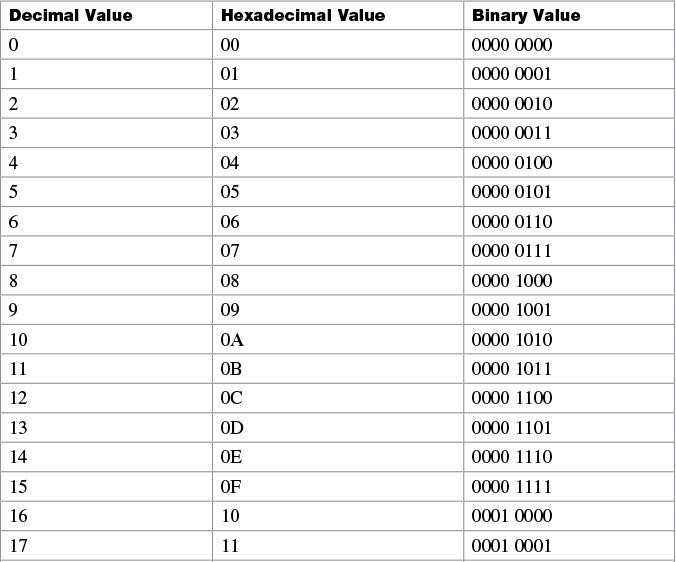
**→** (FFFF - C3DF)16

→ (3C20)16

**→** (0001 + 3C20)16

→ (3C21)16 **ii. Konversi C3DF ke biner**

**→** Menggunakan tabel



→ C=1100

→ 3=0011

→ D=1101

→ F=1111

→ (1100001111011111)2 **iii. Hasil komplemen 2 dari konversi tersebut**

→ (1111111111111111 - 1100001111011111)2

→ (0011110000100000)2

→ (0000000000000001 + 0011110000100000)2

→ (0011110000100001)2 **iv. Konversi jawaban komp 2 tersebut ke hexadecimal dan bandingkan dengan komplemen 16 dari C3DF**

**→** 0001 =1 → 0010 =2

→ 1100 =C

→ 0011 =3

→ (3C21)16 ,memiliki hasil yang sama dengan jawaban di i

**4. Slide 14**

1. **(11010 - 10110)2 kompl 2**

**→** komplemen 2 dari 10110

**→** (111111)2 - (110110)2

→ (001001)2

→ (000001 + 001001)2

→ (001010)2

→ operasi

→ (011010 + 001010)2

→ (1 00100)2 (End Carry, diabaikan)

→ (00100)2

→ +(100)2

1. **(576 – 864)10 kompl 10**

**→** Komplemen 10 dari 864

→ (9999)10 - (9864)10

→ (0136)10

→ Operasi

→ (0576)10 + (0136)10

→ (0712)10 (Tidak ada end carry, di komplemen 10 lagi)

→ (9999)10 -(0712)10

→ (9287)10

→ -(287)10

1. **(345 – 762)8 kompl 8**

**→** Komplemen 8 dari (7762)

→ (7777)8 - (7762)8

→ (0016)8

→ Operasi

→ (0345)8 +(0016)8

→ (0363)8 (Tidak ada end carry, di kompleme 8 sekali lagi)

→ (7777)8-(0363)8

→ (7415)8

→ -(415)8

1. **(7451 – 4562)8 kompl 8**

**→** Komplemen 8 dari (74562)8

→ (77777)8 - (74562)8

→ (03216)8

→ Operasi

→ (07451)8 + (03216)8

→ (1 2667)8

→ +(2667)8

1. **(1100 – 1001)2 kompl 2**

**→** Komplemen 2 dari (11001)2

→ (11111)2 - (11001)2

→ (00111)2

→ Operasi

→ (01100)2 + (00111)2

→ (10010)2 (end carry, diabaikan)

→ + (011)2

**Slide 19**

**(A)**

1. (08739 + 92345)

**→** Komplemen 10 dari (92345)10

(99999 – 92345)10

(07654)10

(1 + 07654)10

(07655)10

**→** Operasi

(08793 + 07655)10

(06394)10 (End Carry, diabaikan)

+ (6394)10

1. (3524 – 6527)8

**→** Komplemen 8 dari (76527)8

(77777 – 76527)8

(01250)8

(00001 + 01250)8

(01251)8

**→** Operasi

(03542 + 01251)8

(050131)8 (Tidak ada end carry, di komplemen 8 lagi)

**→** Komplemen 8 (03793)8

(77777 – 05013)8

(727640)8

(1 + 72764)8

-(2764)8

1. (11010 – 1001)2

**→** Komplemen 2 dari 110011

(111111 – 110011)2

(001100)2

(001101)2

**→** Operasi

(011010 + 001101)2

(100111)2 (End Carry, diabaikan)

+ (00111)2

1. (6723.45 – 4512.72)10

**→** Komplemen 10 dari (94512.72)10

(99999 – 94512.72)10

(05487.27)10

(05487.28)10

**→** Operasi

(06723.45 + 05487.28)10

(11210.73)10 (End Carry, diabaikan)

+ (1210.73)10

**(B)**

1. (3451 – 865)10

**→** Komplemen 9 dari (90865)

(99999 – 0865)10

(9134)10

**→** Operasi

(3451 + 9134)10

(12585)10 (End Carry, ditambah digit akhir)

(2586)10

1. (265 – 652)8

**→** Komplemen 7 dari (7652)

(777 – 652)8

(125)8

**→** Operasi

(256 + 125)8

(412)8 (Tidak ada end carry, di komplemen 7 lagi)

(77777 – 0412)8

(7365)8

-(365)8

1. (10111.11 – 11001.01)2

**→** Komplemen 1 dari (111001.01)2

(11111 – 11001.01)2

(00110.10)2

**→** Operasi

(10111.11 + 00110.10)2

(11110.01)2 (Tidak ada end carry, di komplemen 1 kembali)

(111111.11 – 011110.01)2

(100001.10)2

-(00001.10)2

1. (325.12 – 657.45)8

**→** Komplemen 7 dari (7657.45)8

(777.77 – 657.45)8

(120.32)8

**→** Operasi

(325.12 – 657.45)8

(445.44)8 (Tidak ada end carry, di komplemen 7 kembali)

(7777.77 – 0445.44)8

(7332.33)8

-(332.33)8

**Slide 20**

**1.17**

1. (4.637 – 2.579)10

**→** Komplemen 10 dari (2.579)

(99.999 – 92.579)10

(07.421)10

**→** Operasi

(04.637 + 07.421)10

(12058)10 (End Carry, diabaikan)

+ (2058)10

1. (125 - 1.800)10

**→** komplemen 10 dari (91.800)

(99.999 – 91.800)10

(08.200)10

**→** Operasi

(00.125 + 08.200)10

(08.325)10 (Tidak ada end carry, di komplemen 10 kembali)

**→** Komplemen 10 dari (08.325)

(99.999 – 08,325)10

(91.674 + 1)10

-(1.675)10

1. (2.043 – 4.361)10

**→** Komplemen 10 dari (94.361)

(99.999 – 94.361)10

(05.638)10 => (05.639)10

**→** Operasi

(02.043 + 05.639)10

(07.682)10 (Tidak ada end carry, di komplemen 10 kembali)

**→** Komplemen 10 dari (07.682)10

(99.999 – 07.682)10

(92.317)10 => (92.318)10

-(2.318)10

1. (1.631 – 745)10

**→** Komplemen 10 dari (90.745)

(99.999 – 90.745)10

(09.254)10 (End Carry, diabaikan)

+ (0.886)10

**1.18**

1. (10011 – 10010)2

**→** Komplemen 2 dari (110010)

(111111 – 110010)2

(0011001 + 1)2

(001110)2

**→** Operasi

(010011 + 001100)2

(100001)2 (End Carry, diabaikan)

+(00001)2

1. (100010 – 100110)2

**→** komplemen 2 dari (1100110)2

(1111111 – 1100110)2

(0011001 + 1)2

(0011010)2

**→** Operasi

(0100010 + 00110010)2

(0111100)2 (Tidak ada end carry, di komplemen 2 kembali)

**→** Komplemen 2 dari (0111100)2

(1111111 – 0111100)2

(1 + 1000011)2

(1000100)2

-(000100)2

1. (1001 – 110101)2

**→** komplemen 2 dari (1110101)2

(1111111 – 1110101)2

(0001010 + 1)2

(0001011)2

**→** Operasi

(0001001 + 0001011)2

(0010100 + 1)2

(0010100)2 (Tidak ada end carry, di komplemen 2 kembali)

**→** Komplemen 2 dari (0010100)2

(1111111 – 0010100)2

(1101011 + 1)2

(1101100)2

-(101100)2

1. (101000 – 10101)2

**→** komplemen 2 dari (0110101)2

(1111111 – 1010101)2

(0101010 + 1)2

(0101011)2

**→** Operasi

(0101000 + 0101011)2

(1010011)2

(0010100)2 (End Carry, diabaikan)

+(010011)2

**1.19**

|  |  |  |
| --- | --- | --- |
| (+ 9286)10 = (0092.86)10  (+801)10 = (000801)10 | 999.999  009.286  \_\_\_\_\_\_\_ -  990.713  1  \_\_\_\_\_\_\_ +  (990.714)10 | 999.999  000.801  \_\_\_\_\_\_\_ -  999.198  1  \_\_\_\_\_\_\_ +  (999.199)10 |

1. (+9.286) + (+801) = 009286 + 00080

= (010087)10

1. (+9.286) + (-801) = 009286 + 999199

= (008485)10

1. (-9.286) + (+801) = 990714 + 000801

= (991515)10

1. (-9.286) + (-801) = 990714 + 999199

= (989913)10

**1.21**

|  |  |  |
| --- | --- | --- |
| (+ 9742) = (009742)  (+641) = (000641) | 999999  009742  \_\_\_\_\_\_\_ -  990257  1  \_\_\_\_\_\_\_ +  (990258)10 | 999999  000641  \_\_\_\_\_\_\_ -  999358  1  \_\_\_\_\_\_\_ +  (999359)10 |

1. (+9742) + (+641) = (009742) + (000641)

= (010383)10

1. (+9742) + (-641) = (009742) + (999359)

= (009101)10

1. (-9742) + (+641) = (990258) + (000641)

= (990899)10 (Tidak ada End Carry)

999999

990899

\_\_\_\_\_\_\_-

009100

1

\_\_\_\_\_\_\_+

(009101)10

-(9101)10

1. (-9742) + (-641) = (990258) + (999359)

= (989617)10 (Tidak ada End Carry)

999999

989617

\_\_\_\_\_\_\_-

010382

1

\_\_\_\_\_\_\_+

010383

-(10383)10

**Slide 18**

1. F (a, b, c) = a’ b’ c’ + a’ b c’ + a’ b c + a b’ c + a b c’

= a’ c’ c (b’ + b) + a’ b c + a b’ c + a b c’

= a’ c’ + a’ b c + a b’ c + a b c’

= c’ (a’ + a b) + a b’ c + a’ b c

= c’ ((a’ + a) (a’ + b)) + a b’ c + a’ b c

= a’ c’ + b c’ + a b’ c + a’ b c

= a (c’ + b c) + b c’ + a b’ c

= a’ ((c’ + c) (b + c’)) + b c’ + a b’ c

= a’ b + a’ c + b c’ + a b’ c

1. F (x, y, z) = x’ y z’ + x y’ z’ + x y’ z + x y z

= x’ y z’ + x y’ z’ + x z (y’ + y)

= x’ y z’ + x y’ z’ + x z

= x’ y z’ + x (y’ z’ + z)

= x’ y z’ + x ((z + z’) (z + y’))

= x’ y z’ + x z + x y’

1. F (a, b, c) = a’ b’ c’ + a’ b’ c + a’ b c + a b’ c’ + a b c

= a’ b’ (c’ + c) + a’ b c + a b’ c’ + a b c

= a’ b’ + a’ b c + a b’ c’ + a b c

= a’ b’ + a b’ c’ + b c (a’ + a)

= a’ b’ + a b’ c’ + b c

= b’ (a’ + a c’) + b c

= b’ ((a’ + a) (a’ + c’)) + b c

= a’ b’ + b’ c’ + b c

.