

Pertemuan 1

Nama : Raihan

NIM : 193871

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 2

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 3

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Creating PDFs in JavaScript is awesome!

Pertemuan 4

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 5

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

Nim : 312510156

Kelas : TI.25.A2

Pertemuan : 1

$$1. \frac{x+2}{4-2x} \geq 1-x$$

$$\text{Jawab : } \frac{x+2}{4-2x} - (1-x) \geq 0$$

$$= \frac{x+2-(1-x)(4-2x)}{4-2x} \geq 0 = x + 2 - 2x^2 + 6x - 4 = \frac{-2x^2 + 7x - 2}{4-2x} \geq 0$$

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= -(-2x^2 + 7x - 2) = 0 \quad x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(2)(2)}}{2(2)}$$

$$= 2x^2 - 7x + 2 = 0$$

$$x = \frac{7 \pm \sqrt{49-16}}{4} = \frac{7 \pm \sqrt{33}}{4}$$

$$\text{HP} = \left\{ X \geq \frac{7+\sqrt{33}}{4} \right\} \text{ atau } \left\{ \frac{7-\sqrt{33}}{4} \leq X < 2 \right\}$$

$$2. \frac{x-2}{x^2} \leq \frac{x+1}{x+3}$$

$$\text{Jawab : } \frac{x-2}{x^2} - \frac{x+1}{x+3} \leq 0$$

$$\frac{(x-2)(x+3) - x^2(x+1)}{x^2(x+3)} \leq 0$$

$$\frac{x^2 + x - 6 - x^3 - x^2}{x^2(x+3)} \leq 0$$

$$\frac{-x^3 + x - 6}{x^2(x+3)} \leq 0$$

$$\text{HP} = \{ x < -3 \} \text{ atau } \{ -2 \leq x < 0 \} \text{ dan } \{ x > 0 \}$$

$$3. \quad |2-x| + |3-2x| \leq 3$$

$$\begin{array}{l} \downarrow \\ x = 2 \end{array} \quad \begin{array}{l} \downarrow \\ x = \frac{3}{2} = 1,5 \end{array}$$

Jawab :

Kasus 1

Interval $x \leq 1,5$

$$\begin{aligned} |2-x| &= 2-x & = (2-x) + (3-2x) &= 5-3x \leq 3 \\ |3-2x| &= 3-2x & &= -3x \leq -2 \\ & & &= x \geq \frac{2}{3} = \left[\frac{2}{3}, 1,5 \right] \end{aligned}$$

Kasus 2

Interval $x > 2$

$$\begin{aligned} |2-x| &= x-2 & = (x-2) + (2x-3) &= 3x-5 \leq 3 \\ |3-2x| &= 2x-3 & &= 3x \leq 8 \\ & & &= x \leq \frac{8}{3} \left[2, \frac{8}{3} \right] \\ & & &H\ddot{o}p \left\{ \frac{2}{3} \leq x \leq \frac{8}{3} \right\} \end{aligned}$$

$$4. \quad |x+1|^2 + 2|x+2| \geq 2$$

$$\text{Jawab : } |x+1|^2 + 2|x+2| \geq 2$$

$$|x+1| = 0, x = -1$$

$$|x+2| = 0, x = -2$$

$$x \leq -2, -2 < x \leq -1, x > -1$$

Kasus 1

Interval $x \leq -2$

$$(|x+1|)^2 + 2|x+2| = (-(x+1))^2 + 2(-(x+2))$$

$$= (x+1)^2 + (-2(x+2))$$

$$= (x+1)^2 - 2x - 4 \geq 2$$

$$= x^2 + 2x + 1 - 2x - 4 \geq 2$$

$$\begin{aligned}
&= x^2 - 3 \geq 2 \\
&= x^2 \geq 5 \\
&= x \geq \sqrt{5} \\
&= x \leq -\sqrt{5}
\end{aligned}$$

Kasus 2

Interval $-2 < x \leq -1$

$$\begin{aligned}
(|x+1|)^2 + 2|x+2| &= (x+1)^2 + 2(x+2) \\
&= x^2 + 2x + 1 + 2x + 4 \\
&= x^2 + 4x + 5 \\
&= x^2 + 4x + 5 \geq 2 \\
&= x^2 + 4x + 3 \geq 0 \\
(x+1)(x+3) &\geq 0
\end{aligned}$$

$x \leq -3$ atau $X \geq -1$, yang memenuhi syarat hanya $X \geq -1$ jadi $x = -1$

Kasus 3

Interval $x > -1$

$$\begin{aligned}
(|x+1|)^2 + 2|x+2| &= (x+1)^2 + 2(x+2) \\
&= x^2 + 2x + 1 + 2x + 4 \\
&= x^2 + 4x + 5 \\
&= x^2 + 4x + 5 \geq 2 \\
&= x^2 + 4x + 3 \geq 0 \\
(x+1)(x+3) &\geq 0
\end{aligned}$$

$x \leq -3$ atau $X \geq -1$, hanya $X \geq -1$ yang memenuhi syarat

Jadi HP nya adalah, $\{ X \leq -\sqrt{5} \text{ atau } X \geq -1 \}$

5. $2x + 3 \geq |4x + 5|$

Jawab : $2x + 3 \geq |4x + 5|$

$$4x + 5 = 0$$

$$4x = -5$$

$$x = \frac{-5}{4}$$

$$\text{jika } x \geq \frac{5}{4}$$

$$\text{jika } x < -\frac{5}{4}$$

$$2x + 3 \geq 4x + 5$$

$$2x + 3 \geq -(4x + 5)$$

$$\frac{-2x \geq 2}{-x \geq 1} : 2$$

$$2x + 3 \geq -4x - 5$$

$$= x \leq -1$$

$$\frac{-6x \geq -8}{3x \geq -4} : 2$$

$$= x \geq \frac{-4}{3}$$

$$H_p \left\{ -\frac{4}{3} \leq x \leq -1 \right\}$$

$$6. \quad ||x| + 3x| \leq 2$$

Jawab :

Kasus 1

$$\text{jika } x \geq 0, |x| = x$$

$$|x| + 3x \leq 2$$

$$x + 3x \leq 2$$

$$4x \leq 2$$

$$x \leq \frac{2}{4}$$

$$x \leq \frac{1}{2}$$

$$\{ 0 \leq x \leq \frac{1}{2} \}$$

Kasus 2

$$\text{jika } x < 0, |x| = -x$$

$$|x| + 3x \leq 2$$

$$-x + 3x \leq 2$$

$$2x \leq 2$$

$$x \leq \frac{2}{2}$$

$$x \leq 1$$

$$-1 \leq x$$

$$\{ -1 \leq x \leq 0 \}$$

$$H_p \left\{ -1 \leq x \leq \frac{1}{2} \right\}$$

Pertemuan 2

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : matematika

Pertemuan : 2 (dua)

SOAL

1. Misalkan $A = \{2, 3, 4, 5, 6, 7, 8, 9\}$, dan relasi R didefinisikan oleh : a membagi b , dimana $a, b \in A$, tentukan apakah bersifat transitif atau tidak transitif?
2. R merupakan relasi pada himpunan bilangan asli N yang didefinisikan oleh : $R : a + b = 5, a, b \in A$, tentukan apakah bersifat transitif atau tidak transitif?
3. Misalkan E dan T relasi pada $A = \{9, 8, 7, 6\}$.
 $E = \{(a, b) \mid b = 15 - a\}$ "b sama dengan $(15 - a)$ "
 $T = \{(a, b) \mid a < b\}$ "a lebih kecil dari b"
Tentukan dengan teliti ToE ?
4. Tentukan domain dan range dari fungsi di bawah ini :
 - A. $f(x) = 3 + \sqrt{2 - 4x}$
 - B. $f(x) = \sqrt{\frac{x(x-3)}{x-1}}$
 - C. $f(x) = 3x - \frac{1}{x} + 2$
 - D. $f(x) = \sqrt{x^2 - 5x + 6}$
 - E. $f(x) = \sqrt{4 - x}$
 - F. $f(x) = |x|(x+2)$
 - G. $f(x) = \sqrt{3 - |x - 2|}$
 - H. $f(x) = x^2 - 5x + 6$
 - I. $f(x) = 3 + \sqrt{x - 4}$
 - J. $f(x) = 3 + \sqrt{4 - x^2}$
5. Apakah $f \circ g$ terdefinisi? Bila ya, tentukan rumusan dari $f \circ g$ dan domain dari $f \circ g$.
 - A. $f(x) = \sqrt{4 - x}$
 - B. $f(x) = 3 + \sqrt{2 - 4x}$
 - C. $f(x) = \sqrt{\frac{x(3-x)}{x-1}}$
 - D. $f(x) = |x|(x+2)$
 - E. $f(x) = x^2 - 5x + 6$

JAWABAN

1. Relasi R pada himpunan A :

$$R = \{(2,2), (2,4), (2,6), (2,8), (3,3), (3,6), (3,9), (4,4), (4,8)\}$$

Ketika $(2,4) \in R$ dan $(4,8) \in R$ terlihat bahwa $(2,8) \in R$

Jadi, R **bersifat transitif**

2. Relasi R pada himpunan 4 , yaitu :

$$R \{(1,4), (4,1), (2,3), (3,2)\}$$

Ketika $(1,4) \in R$ dan $(4,1) \in R$, tetapi $(1,1) \in R$

Jadi, R tidak bersifat transitif

3. $E = \{(9,6), (8,7), (7,8), (6,9)\}$

$$T = \{(6,7), (6,8), (6,9), (7,8), (7,9), (8,9)\}$$

Dari E setiap a dipetakan ke $b = 15-a$. Jadi syarat komposisi menjadi : $(a,c) \in T$ dengan $b = 15-a$, yaitu $(b < c)$ yang berarti menghasilkan :

$$ToE = \{(9,7), (9,8), (9,9), (8,8), (8,9), (7,9)\} \text{ atau } ToE = \{(a,c) \in A \times A \mid a + c > 15\}$$

4. A. $f(x) = 3 + \sqrt{2-4x}$

Domain

$$\text{Syarat : } 2 - 4x > 0 \Rightarrow -4x \geq -2 \Rightarrow x \leq \frac{1}{2}$$

Range

$$y = 3 + \sqrt{2-4x}$$

$$y \geq 3, \sqrt{2-4x} \geq 0 = \sqrt{2-4x} = y-3$$

$$2-4x = (y-3)^2$$

$$x = \frac{2-(y-3)^2}{4}$$

$$\text{Maka, } \frac{2-(y-3)^2}{4} \leq \frac{2}{4} = \frac{1}{2}$$

B. $f(x) = \sqrt{\frac{x-3}{x-1}}$

Domain

$$\text{Pembagi } \neq 0 \rightarrow x \neq 1$$

$$\text{Pecah tanda } \frac{x-3}{x-1} \geq 0$$

Titik kritis : 1 dan 3

Uji interval : $\{-\infty, 1\}$ positif, $\{1, 3\}$ negatif, $\{3, \infty\}$ positif.

Range

$$y \in \{0, 1\} / y \in \{1, \infty\}$$

$$0 \leq y < 1$$

$$1 < y < \infty$$

C. $f(x) = 3x - \frac{1}{x} + 2$

Domain : $x \neq 0 \rightarrow \mathbb{R} \setminus \{0\}$

Range : semuanya bilangan real, setiap y memiliki solusi $x \neq 0$

D. $f(x) = \sqrt{x^2 - 5x + 6}$

Domain : $x^2 - 5x + 6 \geq 0$

$$\{x-2\}x-3 \geq 0 \rightarrow x \leq 2 \text{ atau } x \geq 3$$

$$\{-\infty, 2\} \cup \{3, \infty\}$$

Range : keduanya ke ∞ saat $|x| \rightarrow \infty$, nilai 0 tercapai di $x = 2$ atau $x = 3$

$$R = \{0, \infty\}$$

E. $f(x) = \sqrt{4 - x}$

Domain : $4-x \geq 0 \Rightarrow x \leq 4$. $D = -\infty, 4$

Range : $x \geq 0$: $f = x^2 + 2x$, nilai mulai dari 0 ke ∞

$$x < 0 : f = -x^2 - 2x = 1 - (x+1)^2 \rightarrow \{-\infty, 1\}$$

F. $f(x) = |x| (x \neq 2)$

Domain : tidak ada perubahan -> **semua real**

Range : $x \geq 0$: $f = x^2 + 2x$, nilai mulai dari 0 ke ∞

$$x < 0 : f = -x^2 - 2x = 1 - (x+1)^2 \rightarrow \{-\infty, 1\}$$

G. $f(x) = \sqrt{3x - |x-2|}$

Domain : $3 - |x-2| \geq 0 \Leftrightarrow |x-2| \leq 3$

$$-3 \leq x-2 \leq 3 \Leftrightarrow -1 \leq x \leq 5$$

$$D = \{-1, 5\}$$

Range : $y = f(x) = \sqrt{3 - |x-2|} \geq 0$, maka $y \geq 0$

$$y_{\max} = \sqrt{3 - 0} = \sqrt{3}$$

$$y_{\min} = 0$$

$$R : \{0, \sqrt{3}\}$$

H. $f(x) = x^2 - 5x + 6$

Domain : $x \in \mathbb{R}$

Range : $x_{\min} = \frac{-b}{2a} = \frac{5}{2} \rightarrow \left\{\frac{5}{2}\right\} \rightarrow \left\{\frac{5}{2}\right\}^2 - 5 \left\{\frac{5}{2}\right\} + 6 = \frac{25}{4} - \frac{25}{2} + 6 = \frac{25-50+24}{4} = \frac{-1}{4} = -0,25$

I. $f(x) = 3 + \sqrt{x - 4}$

Domain : $x - 4 \geq 0 \Rightarrow x \geq 4$

Range : $x \rightarrow \infty, \sqrt{x - 4} \rightarrow \infty \Rightarrow y \rightarrow \infty$

$$y = 3 + \sqrt{x - 4} \quad \sqrt{x - 4} \geq 0$$

$$\text{nilai minimum } x = \sqrt{4} - 4 = 0 \quad y_{\min} = 3$$

J. $f(x) = 3\sqrt{4 - x^2}$

Domain : $3 - x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2 \quad D = \{-2, 2\}$

$$\text{Range : o } \sqrt{4 - (\pm 2)^2} = \sqrt{0} = 0 \quad y_{\min} 3 + 0 = 3$$

$$\text{o } \sqrt{4 - 0} = \sqrt{4} = 2 \Rightarrow y_{\max} = 3 + 2 = 5 \quad R = \{3, 5\}$$

5. A. $f(x) = \sqrt{4 - x} \quad g(x) = |x|$

$$(f \circ g)(x) = f(g(x)) = \sqrt{4 - |x|}$$

($f \circ g$) terdefinisi dengan dominannya $\{-4, 4\}$

B. $f(x) = \sqrt{2 - 4x} \quad g(x) = 3x - \frac{1}{x} + 2$

$$(f \circ g)(x) = 3 + \sqrt{-6 - 12x + \frac{4}{x}}$$

Terdefinisi dengan dominan tertentu $\{-\infty, \frac{-3-\sqrt{57}}{12}\} \cup \{0, \frac{-3-\sqrt{57}}{12}\}$

C. $f(x) = \sqrt{\frac{x(x-3)}{x-1}} \quad g(x) = \sqrt{x^2 - 5x + 6}$

$$(f \circ g)(x) = \frac{\sqrt{x^2 - 5x + 6}, (\sqrt{x^2 - 5x + 6} - 3)}{\sqrt{x^2 - 5x + 6 - 1}}$$

Terdefinisi dengan dominannya $\{-\infty, \frac{5-\sqrt{37}}{2}\} \cup \{\frac{5-\sqrt{5}}{2}, 2\} \cup \{3, \frac{5+\sqrt{5}}{2}\} \cup \{\frac{5+\sqrt{37}}{2}, \infty\}$

D. $f(x) = |x|(x+2) \quad g(x) = \sqrt{3 - |x - 2|}$

$$(f \circ g)(x) = (\sqrt{3} - |x-2|)(\sqrt{3} - |x-2| + 2)$$

Terdefinisi dengan dominannya $\{-1, 5\}$

E. $f(x) = x^2 - 5x + 6 \quad g(x) = 3 + \sqrt{x - 4}$

$$(f \circ g)(x) = (3 + \sqrt{x} - 4)^2 - 5(3 + \sqrt{x} - 4) + 6 = x - 4 + \sqrt{x} - 4$$

Terdefinisi dengan dominannya $\{4, \infty\}$

Pertemuan 3

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 3 (tiga)

Jawaban

1. $\lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x}$

Jawab :

$$\begin{aligned}\lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x} &= \lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x} \cdot \frac{2 + \sqrt{4-3x}}{2 + \sqrt{4-3x}} = \lim_{x \rightarrow 0} \frac{(2)^2 - (\sqrt{4-3x})^2}{x(2 + \sqrt{4-3x})} = \\ \lim_{x \rightarrow 0} \frac{4 - (4-3x)}{x(2 + \sqrt{4-3x})} &= \lim_{x \rightarrow 0} \frac{3x}{x(2 + \sqrt{4-3x})} = \\ \lim_{x \rightarrow 0} \frac{3}{2 + \sqrt{4-3x}} &= \frac{3}{2 + \sqrt{4-3(0)}} = \frac{3}{2 + \sqrt{4}} = \frac{3}{4}\end{aligned}$$

2. Tentukan $\frac{f(x+h)-f(x)}{h}$ jika diketahui $f(x) = 3x^2 + 2x + 6$?

Jawab:

$$\begin{aligned}\lim_{h \rightarrow 0} \frac{f(x+h)-f(x)}{h} &= \lim_{h \rightarrow 0} \frac{(3(x+h)^2 + 2(x+h)+6) - (3x^2 + 2x+6)}{h} \\ \lim_{h \rightarrow 0} \frac{(3(x^2+2xh+h^2)+2x+2h+6)-(3x^2+2x+6)}{h} &= \\ \lim_{h \rightarrow 0} \frac{(3x^2+6xh+3h^2+2x+2h+6)-(3x^2+2x+6)}{h} &= \\ \lim_{h \rightarrow 0} \frac{\cancel{(3x^2+2x+6)} + 6xh + 3h^2 + 2h}{\cancel{h}} &= \lim_{h \rightarrow 0} 6x + 3(0) + 2 = 6x + 2\end{aligned}$$

3. $\lim_{x \rightarrow 2} \frac{2x^2 - 3x - 2}{x - 2}$

Jawab:

$$\begin{aligned}\lim_{x \rightarrow 2} \frac{(2x+1)(2-x)}{x-2} &= \lim_{x \rightarrow 2} 2x + 1 \\ \lim_{x \rightarrow 2} 2(2) + 1 &= 5\end{aligned}$$

4. $\lim_{x \rightarrow 9} \frac{x-9}{\sqrt{x-3}}$

Jawab:

$$\lim_{x \rightarrow 9} \frac{x-9}{\sqrt{x-3}} \cdot \frac{\sqrt{x+3}}{\sqrt{x+3}} = \lim_{x \rightarrow 9} \frac{x-9(\sqrt{x+3})}{\cancel{x-9}} = \sqrt{x+3}$$
$$\lim_{x \rightarrow 9} \sqrt{9+3} = 3+3=6$$

5. $\lim_{x \rightarrow 0} \sin \left(\frac{1}{x} \right)$

Jawab:

Nilai $\frac{1}{x}$ adalah ∞ , karena $x \rightarrow 0$ jadi limit tidak ada

6. $f(x) = \begin{cases} x^2 + 1, & x \leq 1 \\ -x + 2, & x > 1 \end{cases}$ cari $\lim_{x \rightarrow 1^-}$ dan $\lim_{x \rightarrow 1^+}$

Jawab:

- Untuk $x \leq 1 \Rightarrow \lim_{x \rightarrow 1^-} f(x) = 1^2 + 1 = 2$

- Untuk $x > 1 \Rightarrow \lim_{x \rightarrow 1^+} f(x) = -x + 2 \rightarrow 1^+ = \lim_{x \rightarrow 1^+} f(x) = -1 + 2 = 1$

Karena $2 \neq 1$ maka limit tak ada

7. $g(x) = |x-2| - 3x$, cari limit kiri dan kanan saat $x \rightarrow 2$

Jawab:

- $x < 2$

$$\lim_{x \rightarrow 2^-} |x-2| - 3x = \lim_{x \rightarrow 2^-} (-x+2) - 3x = \lim_{x \rightarrow 2^-} -4x + 2 = \lim_{x \rightarrow 2^-} -4(2) + 2 =$$
$$\lim_{x \rightarrow 2^-} -8 + 2 = -6$$

- $x > 2$

$$\lim_{x \rightarrow 2^+} |x-2| - 3x = \lim_{x \rightarrow 2^+} (x-2) - 3x = \lim_{x \rightarrow 2^+} -2x - 2 = \lim_{x \rightarrow 2^+} -2(2) - 2 = -4 - 2$$
$$= -6$$

Jadi $\lim_{x \rightarrow 2} g(x) = 6$

8. $f(x) = \frac{|x-2|}{x-2}$ hitung $\lim_{x \rightarrow 2^-} f(x)$, $\lim_{x \rightarrow 2^+} f(x)$, $\lim_{x \rightarrow 2} f(x)$

Jawab:

Jawab No. 8 :

- $x < 2$

$$\lim_{x \rightarrow 2^-} \frac{|x-2|}{x-2} = \frac{-|x-2|}{x-2} = -1$$

$$\lim_{x \rightarrow 2^-} f(x) = -1$$

- $x > 2$

$$\lim_{x \rightarrow 2^+} f(x) = \frac{|x-2|}{x-2} = \frac{(x-2)}{x-2} = 1$$

Karena limit kiri (-1) ≠ kanan (1), maka limit tidak ada

9. Tentukan $\lim_{x \rightarrow \infty} \frac{x^2+2x+5}{2x^2+4}$

Jawab:

Untuk limit ke $\pm \infty$, bagi pembilang dan penyebut oleh x^2 : $\frac{x^2+2x+5}{2x^2+4} = \frac{1 + \frac{2}{x^2} + \frac{5}{x^2}}{2 + \frac{4}{x^2}}$

Saat $x \rightarrow -\infty$ semua suku termasuk $\frac{1}{x}, \frac{2}{x^2}, \frac{5}{x^2} \rightarrow 0$ jadi limitnya : $\frac{1}{2}$

10. Tentukan $\lim_{x \rightarrow -\infty} \frac{2x+5}{2x^2+4}$

Jawab:

Ketika $\frac{2x+5}{2x^2+4} = \frac{\frac{2}{x^2} + \frac{5}{x^2}}{2 + \frac{4}{x^2}}$ saat $x \rightarrow -\infty$

- $\frac{2}{x} \rightarrow 0^-$

- $\frac{5}{x^2} \rightarrow 0^+$

- $\frac{4}{x^2} \rightarrow 0^+$

Jadi hasilnya : $\lim_{x \rightarrow -\infty} \frac{2x+5}{2x^2+4} = \frac{0}{2} = 0$

11. Tentukan $\lim_{x \rightarrow -\infty} \sqrt{x^2 + x + 3} + x$

Jawab:

Kalikan dan bagi dengan : $\sqrt{x^2 + x + 3} + x : \sqrt{x^2 + x + 3} + x = \frac{x+3}{\sqrt{x^2+x+3}+x} = -\frac{1}{2}$

$$12. \text{ Tentukan } \lim_{x \rightarrow 2} \left(\frac{1}{1-x} \right) \cdot \left(\frac{2}{x-x^2} \right)$$

Jawab:

$$\text{Samakan penyebut } \frac{1}{1-x} \cdot \frac{2}{x-x^2} = \frac{x-2}{x(1-x)} = \frac{2-2}{2(1-2)} = 0$$

Pertemuan 4

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 4 (empat)

LATIHAN SOAL

1. Periksa apakah fungsi berikut kontinu di $x = 2$, jika tidak sebutkan alasannya?

a. $f(x) = \frac{x^2 - 4}{x - 2}$

b. $f(x) = \begin{cases} \frac{x^2 - 4}{x - 2}, & x \neq 2 \\ 3, & x = 2 \end{cases}$

c. $f(2) = 2^2 - 1 = 3 \quad f(2) = x^2 - 1 = 3$

2. Tentukan konstanta a agar fungsi

$$f(x) = \begin{cases} x + a, & x < 2 \\ ax^2 - 1, & x \geq 2 \end{cases}$$

Kontinu di $x = 2$?

3. $\lim_{x \rightarrow 2} f(x) = \frac{x^2 - 5x + 6}{6x - 12} \rightarrow \text{Bentuk tak tentu } \frac{0}{0}$

4. $\lim_{x \rightarrow 3} f(x) = \frac{x^2 + x - 12}{x^2 + 3x - 18} \rightarrow \text{Bentuk tak tentu } \frac{0}{0}$

Jawaban

1. A. $f(x) = \frac{x^2 - 4}{x - 2}$, $x \neq 2$, $f(2) = 3$

$$\frac{x^2 - 4}{x - 2} = \frac{(x-2)(x+2)}{x-2} = x + 2 \lim_{x \rightarrow 2} f(x) = 4$$

B. $f(2) = \begin{cases} \frac{x^2 - 4}{x - 2}, & x \neq 2 \\ 3, & x = 2 \end{cases}$

$$\frac{x^2 - 4}{x - 2} = \frac{(x-2)(x+2)}{x-2} = x + 2 \rightarrow \lim_{x \rightarrow 2} f(x) = \lim_{x \rightarrow 2} (x + 2) = 4$$

Fungsi tidak kontinu di $x = 2$

C. $f(2) = 2^2 - 1 = 3 \quad f(2) = x^2 - 1 = 3$

$$f(2) = 2^2 - 1 = 4 - 1 = 3$$

nilai fungsi di $x=2$ adalah 3

2. Kontinu di $x=2$ $f(x) = \begin{cases} x + a, & x < 2 \\ ax^2 - 1, & x \geq 2 \end{cases}$

$$\lim_{x \rightarrow 2^+} f(x) = 2 + a \rightarrow \lim_{x \rightarrow 2^+} f(x) = a(2)^2 - 1 = 4a - 1$$

$$2 + a = 4a - 1 \rightarrow 3 = 3a \rightarrow a = 1$$

Fungsi kontinu jika di $x=2$ jika $a=1$

3. $x^2 - 5x + 6 = (x-2)(x-3)$

$$6x - 12 = 6(x-2)$$

$$\frac{(x-2)(x-3)}{6(x-2)} = \frac{x-3}{6} \rightarrow \frac{2-3}{6} = \frac{-1}{6}$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{6x - 12} = -\frac{1}{6}$$

4. $\lim_{x \rightarrow 3} f(x) = \frac{x^2 + x - 12}{x^2 + 3x - 18} \rightarrow$ bentuk tak te

$$\frac{9+3-12}{9+9-18} = \frac{0}{0} \rightarrow x^2 + x - 12 = (x + 4)(x - 3) \rightarrow x^2 + 3x - 18 = (x + 6)(x - 3) \rightarrow \frac{(x + 4)(x - 3)}{(x + 6)(x - 3)}$$

$$= \frac{x + 4}{x + 6} \rightarrow \frac{3 + 4}{3 + 6} = \frac{7}{9} \rightarrow$$

$$\rightarrow \lim_{x \rightarrow 3} \frac{x^2 + x - 12}{x^2 + 3x - 18} = \frac{7}{9}$$

Pertemuan 5

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 5 (lima)

Jawaban :

1. $(384)_8 = (260)_{10} = (100000100)_2$

Okta	Desimal	Biner
384_8	$(3x8^2) + (8x8^1) + (4x8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

2. $(872)_8 = (570)_{10} = (1000111010)_2$

Okta	Desimal	Biner
384_8	$(8x8^2) + (7x8^1) + (2x8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

3. $(1193)_8 = (651)_{10} = (1010001011)_2$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$ $512 + 64 + 72 + 3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 001 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 3 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$	$1152 \div 2 = 576$ $576 \div 2 = 288$ 0

	$= 1152_{10}$	$288 \div 2 = 144$ $144 \div 2 = 72$ $72 \div 2 = 36$ $36 \div 2 = 18$ $18 \div 2 = 9$ $9 \div 2 = 4$ $4 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$	0 0 0 0 0 1 0 0 1
--	---------------	--	---

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011_2	$(1x2^4) + (1x2^3) + (0x2^2) + (1x2^1) + (1x2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833_{10}	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23_8	$(2x8^1) + (3x8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011_2	$(1x2^6) + (0x2^5) + (0x2^4) + (0x2^3) +$ $(1x2^2) + (1x2^1)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100_{10}	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$

	$12 \div 2 = 6$	0
	$6 \div 2 = 3$	0
	$3 \div 2 = 1$	1
	$1 \div 2 = 0$	1
	$= 1100100_2$	

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$(3 \times 8^1) + (1 \times 8^0)$ $8 + 1 = 9$ $= 9_{10}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$78 \div 8 = 9$ $9 \div 8 = 1$ $1 \div 8 = 0$ $= 116_8$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$ $8 + 4 + 0 + 1$ $= 13_{10}$

16. $(11010)_2 = (32)_8$

Biner	Okta
$(11010)_2$	011 010 3 2 $= 32_8$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
$(1001000)_2$	0100 1000 4 8 $= 48_{16}$

18. $1101_2 + 1011_2 = (11000)_2$

$$\begin{array}{r} +1101 \\ 1011 \\ \hline 11000 \end{array}$$

$$19. \ 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} -0101001 \\ \hline 1010010 \end{array}$$

$$20. \ 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} +01001110 \\ \hline 10101001 \end{array}$$

$$21. \ 111101 + 101001 = (010100)_2$$

$$\begin{array}{r} -111101 \\ \hline 010100 \end{array}$$

$$22. \ 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} +10110 \\ \hline 110011 \end{array}$$

$$\begin{array}{r} +01100 \\ \hline 111111 \end{array}$$

$$\begin{array}{r} +11011 \\ \hline 1011010 \end{array}$$

$$\begin{array}{r} +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 6

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

KONVERSI SISTEM BILANGAN

Nama : Varel Nico Ramadhan

Nim : 312510156

Kelas : TI.25.A2

Mata Kuliah : Matematika Kalkulus

Tugas 6

Soal dan Penyelesaian!

A. Latihan 1

$$\begin{aligned}1. \quad (97)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\&= (\dots\dots)_{16} \\2. \quad (29)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\3. \quad (112)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\&= (\dots\dots)_{16} \\4. \quad (77)_{10} &= (\dots\dots)_2 = (\dots\dots)_8 \\&= (\dots\dots)\end{aligned}$$

$$\begin{aligned}5. \quad (88)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16} \\6. \quad (111)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16} \\7. \quad (123)_{10} &= (\dots\dots)_2 \\8. \quad (127)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16}\end{aligned}$$

B. Latihan 2

$$\begin{aligned}1. \quad (1001011)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\2. \quad (1100111)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\3. \quad (1011100)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\4. \quad (01111110)_2 &= (\dots\dots)_8 = (\dots\dots)_{16} \\5. \quad (0111101111)_2 &= (\dots\dots)_8 = (\dots\dots)_{16}\end{aligned}$$

C. Latihan 3

$$\begin{aligned}1. \quad (153)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\2. \quad (246)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\3. \quad (112)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\4. \quad (57)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\5. \quad (77)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\6. \quad (123)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\7. \quad (155)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\8. \quad (175)_8 &= (\dots\dots)_2 = (\dots\dots)_{16}\end{aligned}$$

D. Latihan 4

1. $(5F)_{16} = (\dots)_2$
 $= (\dots)_8$
2. $(0A)_{16} = (\dots)_2 = (\dots)_8$
3. $(F16)_{16} = (\dots)_2$
 $= (\dots)_8$
4. $(AD1)_{16} = (\dots)_2$
 $= (\dots)_8$
5. $(B29)_{16} = (\dots)_2$
 $= (\dots)_8$
6. $(B055)_{16} = (\dots)_2 = (\dots)_8$
7. $(ACDC)_{16} = (\dots)_2 = (\dots)_8$

E. Latihan 5

Konversikan !

1. $(759)_{10} = (\dots)_{BCD}$
2. $(4628)_{10} = (\dots)_{BCD}$
3. $(AD1)_{16} = (\dots)_{BCD}$
4. $(F16)_{16} = (\dots)_{BCD}$
5. $(75)_8 = (\dots)_{BCD}$
6. $(B055)_{16} = (\dots)_{BCD}$

F. Latihan 6

1. Konversikan bilangan oktal berikut ke bilangan **decimal**
 - a. $213_{(8)}$
 - b. $57_{(8)}$
2. Konversikan bilangan desimal berikut ini ke bilangan **oktal**
 - a. $351_{(10)}$
 - b. $629_{(10)}$
3. Konversikan bilangan oktal berikut ini ke bilangan **biner**
 - a. 27
 - b. 210
 - c. $555_{(8)}$
 - d. $6543_{(8)}$
4. Konversikan bilangan biner berikut ini ke bilangan **Oktal**
 - a. 010
 - b. 110011
 - c. 1011001
 - d. 1010111000

G. Latihan 7

1. Konversikan bilangan decimal berikut ke bilangan **heksadesimal v**
 - a. $19.889_{(10)}$
 - b. $2672_{(10)}$
2. Konversikan bilangan desimal berikut ini ke bilangan **octal v**
 - a. $1402_{(10)}$
 - b. $385_{(10)}$
3. Konversikan bilangan oktal berikut ini ke bilangan **biner v**
 - a. 315
 - b. 145
 - c. $54_{(8)}$
 - d. $265_{(8)}$
4. Konversikan bilangan biner berikut ini ke bilangan **heksadesimal**
 - a. 10100
 - b. 1001010
 - c. 10111

JAWAB

A. Latihan 1

1. $(97)_{10}$
 Biner = $(1100001)_2$
 Oktal = $1\ 100\ 001 \rightarrow 1, 4, 1$
 $= (141)_8$
- Heksa = $0110\ 0001 \rightarrow 6, 1$
 $= (61)_{16}$
2. $(29)_{10}$
 Biner = $(11101)_2$
 Oktal = $011\ 101 \rightarrow 3, 5$
 $= (35)_8$
 Heksa = $0001\ 1101 \rightarrow 1, D$
 $= (1D)_{16}$
3. $(112)_{10}$
 Biner = $(1110000)_2$
 Oktal = $1\ 110\ 000 \rightarrow 1, 6, 0$
 $= (160)_8$
- Heksa = $0111\ 0000 \rightarrow 7, 0$
 $= (70)_{16}$
4. $(77)_{10}$
 Biner = $(1001101)_2$
 Oktal = $001\ 001\ 101 \rightarrow 1, 1, 5$
 $= (115)_8$
- Heksa = $0100\ 1101 \rightarrow 4, D$
 $= (4D)_{16}$
5. $(88)_{10}$
 Biner = $(1011000)_2$
 Oktal = $001\ 011\ 000 \rightarrow 1, 3, 0$
 $= (130)_8$
- Heksa = $0101\ 1000 \rightarrow 5, 8$
 $= (58)_{16}$
6. $(111)_{10}$
 Biner = $(1101111)_2$
 Oktal = $001\ 101\ 111 \rightarrow 1, 5, 7$
 $= (157)_8$
- Heksa = $0110\ 1111 \rightarrow 6, F$
 $= (6F)_{16}$
7. $(123)_{10}$
 Biner = $(1111011)_2$
 Oktal = $111\ 101\ 1 \rightarrow 001\ 111\ 011 =$
 $1, 7, 3$
 $= (173)_8$
 Heksa = $0111\ 1011 \rightarrow 7, B$
 $= (7B)_{16}$
8. $(127)_{10}$
 Biner = $(1111111)_2$
 Oktal = $111\ 111\ 1 \rightarrow 001\ 111\ 111 =$
 $1, 7, 7$
 $= (177)_8$
- Heksa = $0111\ 1111 \rightarrow 7, F$
 $= (7F)_{16}$

B. Latihan 2

1. $(1001011)_2 = (113)_8 = (75)_{10} = (4B)_{16}$
Oktal = 1 001 011
→ 001 001 011
→ (001)=1, (001)=1, (011)=3
= $(113)_8$

Desimal

Hitung nilai biner:

$$= 1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + \\ 1 \times 2^1 + 1 \times 2^0 \\ = 64 + 0 + 0 + 8 + 0 + 2 + 1 = (75)_{10}$$

Heksadesimal

$$0100\ 1011 \rightarrow (0100)=4, (1011)=B \\ = (4B)_{16}$$

2. $(1100111)_2 = (147)_8 = (103)_{10} = (67)_{16}$

Oktal = 1 100 111 →
tambahkan nol di depan : 001 100 111
→ (001)=1, (100)=4, (111)=7
= $(147)_8$

Desimal

$$= 1 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + \\ 1 \times 2^1 + 1 \times 2^0 \\ = 64 + 32 + 0 + 0 + 4 + 2 + 1$$

$$= (103)_{10}$$

Heksadesimal

$$= 0110\ 0111 \rightarrow (0110)=6, (0111)=7 \\ = (67)_{16}$$

3. $(1011100)_2 = (134)_8 = (92)_{10} = (5C)_{16}$

Oktal = 1 011 100 →
tambahkan nol di depan: 001 011 100
→ (001)=1, (011)=3, (100)=4
= $(134)_8$

Desimal

$$= 1 \times 2^6 + 0 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + \\ 0 \times 2^1 + 0 \times 2^0 \\ = 64 + 0 + 16 + 8 + 4 + 0 + 0$$

$$= (92)_{10}$$

Heksadesimal

$$= 0101\ 1100 \rightarrow (0101)=5, (1100)=C \\ = (5C)_{16}$$

4. $(01111110)_2 = (376)_8 = (7E)_{16}$

Oktal = 011 111 110
→ (011)=3, (111)=7, (110)=6
= $(376)_8$

Heksa = 0111 1110

$$\rightarrow (0111)=7, (1110)=E \\ = (7E)_{16}$$

5. $(0111101111)_2 = (757)_8 = (3DF)_{16}$

Oktal = 0 111 101 111
→ 000 111 101 111
→ (000)=0, (111)=7, (101)=5,
(111)=7
= $(757)_8$

Heksa = 0011 1101 1111

$$\rightarrow (0011)=3, (1101)=D, (1111)=F \\ = (3DF)_{16}$$

C. Latihan 3

1. $(153)_8 = (1101011)_2 = (6B)_{16}$

Langkah:

1 → 001

5 → 101

3 → 011

Gabung: $001101011 \rightarrow (1101011)_2$

Pisah 4 bit dari kanan → 0110 1011

0110 = 6, 1011 = B

8. $(175)_8 = (1111101)_2 = (7D)_{16}$

1 → 001

7 → 111

5 → 101

= 001111101 → $(1111101)_2$

= 0111 1101

= **0111 = 7, 1101 = D**

2. $(246)_8 = (10100110)_2 = (A6)_{16}$

2 → 010

4 → 100

6 → 110

= 010100110 → $(10100110)_2$

= **1010 = A, 0110 = 6**

3. $(112)_8 = (1001010)_2 = (4A)_{16}$

1 → 001

1 → 001

2 → 010

= 001001010 → $(1001010)_2$

= **0100 = 4, 1010 = A**

4. $(57)_8 = (101111)_2 = (2F)_{16}$

5 → 101

7 → 111

= $(101111)_2$

= 0010 1111

= **0010 = 2, 1111 = F**

5. $(77)_8 = (111111)_2 = (3F)_{16}$

7 → 111

7 → 111

= $(111111)_2$

= 0011 1111

= **0011 = 3, 1111 = F**

6. $(123)_8 = (1010011)_2 = (53)_{16}$

1 → 001

2 → 010

3 → 011

= 001010011 → $(1010011)_2$

= 0101 0011

= **0101 = 5, 0011 = 3**

7. $(155)_8 = (1101101)_2 = (6D)_{16}$

1 → 001

5 → 101

5 → 101

= 001101101 → $(1101101)_2$

= 0110 1101

= **0110 = 6, 1101 = D**

D. Latihan 4

1. $(5F)_{16} = (01011111)_2 = (137)_8$
5 → 0101
F → 1111
Biner = 0101 1111 → $(01011111)_2$
Oktal :
01 011 111 → **001=1, 011=3, 111=7**
= $(137)_8$
2. $(0A)_{16} = (00001010)_2 = (12)_8$
0 → 0000
A → 1010
Biner = 0000 1010 = $(00001010)_2$
Oktal :
000 001 010 → 000=0, 001=1, 010=2
= $(1012)_8$
3. $(F16)_{16} = (111100010110)_2 = (7426)_8$
F → 1111
1 → 0001
6 → 0110
Biner = 1111 0001 0110
→ $(111100010110)_2$
Oktal :
11 100 010 110 → 111=7, 100=4,
010=2, 110=6
= $(7426)_8$
4. $(AD1)_{16} = (101011010001)_2 = (5321)_8$
A → 1010
D → 1101
1 → 0001
Biner = 1010 1101 0001
→ $(101011010001)_2$
Oktal :
101 011 010 001 → 101=5, 011=3,
010=2, 001=1
= $(5321)_8$
5. $(B29)_{16}$
B → 1011
2 → 0010
9 → 1001
Biner = 1011 0010 1001
→ $(101100101001)_2$
Oktal :
101 100 101 001 → 101=5, 100=4,
101=5, 001=1
= $(5451)_8$
6. $(B055)_{16}$
B → 1011
0 → 000
5 → 0101
5 → 0101
Biner = 1011 0000 0101 0101
→ $(1011000001010101)_2$
Oktal :
001 011 000 000 101 010 101
→ 001=1, 011=3, 000=0, 000=0,
101=5, 010=2, 101=5
= $(130125)_8$
7. $(ACDC)_{16}$
A → 1010
C → 1100
D → 1101
C → 1100
Biner = 1010 1100 1101 1100
→ $(1010110011011100)_2$
Oktal :
001 010 110 011 011 100
= $(126334)_8$

E. Latihan 5

1. $(759)_{10} \rightarrow \text{BCD}$

$$7 \rightarrow 0111$$

$$5 \rightarrow 0101$$

$$9 \rightarrow 1001$$

$$(759)_{10} = (0111\ 0101\ 1001)_{\text{BCD}}$$

2. $(4628)_{10}$

$$4 \rightarrow 0100$$

$$6 \rightarrow 0110$$

$$2 \rightarrow 0010$$

$$8 \rightarrow 1000$$

$$(4628)_{10} =$$

$$(0100\ 0110\ 0010\ 1000)_{\text{BCD}}$$

3. $(AD1)_{16}$

Langkah 1 — ubah hex → desimal:

$$A = 10, D = 13, 1 = 1$$

$$(AD1)_{16} = 10 \cdot 16^2 + 13 \cdot 16^1 + 1 \cdot 16^0$$

Hitung :

$$16^2 = 256 \rightarrow 10 \cdot 256 = 2560$$

$$13 \cdot 16 = 208$$

$$1 \cdot 1 = 1$$

$$\text{Total desimal} = 2560 + 208 + 1 = \\ \mathbf{2769}$$

Langkah 2 — pisah digit desimal :

$$2769 \rightarrow 2, 7, 6, 9.$$

Konversi ke BCD:

$$2 \rightarrow 0010$$

$$7 \rightarrow 0111$$

$$6 \rightarrow 0110$$

$$9 \rightarrow 1001$$

$$(AD1)_{16} =$$

$$(0010\ 0111\ 0110\ 1001)_{\text{BCD}}$$

4. $(F16)_{16}$

hex → desimal:

$$F = 15, 1 = 1, 6 = 6$$

$$(F16)_{16} = 15 \cdot 16^2 + 1 \cdot 16^1 + 6 \cdot 16^0$$

$$16^2 = 256 \rightarrow 15 \cdot 256 = 3840$$

$$1 \cdot 16 = 16$$

$$6 \cdot 1 = 6$$

$$\text{Total desimal} = 3840 + 16 + 6 =$$

$$\mathbf{3862}$$

pisah digit desimal 3862 → 3, 8, 6, 2

$$3 \rightarrow 0011$$

$$8 \rightarrow 1000$$

$$6 \rightarrow 0110$$

$$2 \rightarrow 0010$$

$$(F16)_{16} =$$

$$(11\ 0\ 0110\ 0010)_{\text{BCD}}$$

5. $(75)_8$

octal → desimal:

$$75_8 = 7 \cdot 8^1 + 5 \cdot 8^0$$

$$= 7 \cdot 8 + 5 \cdot 1 = 56 + 5$$

$$= 61$$

digit desimal 61 → 6, 1.

Konversi ke BCD:

$$6 \rightarrow 0110$$

$$1 \rightarrow 0001$$

$$(75)_8 = (0110\ 0001)_{\text{BCD}}$$

6. $(B055)_{16}$

hex → desimal:

$$B = 11, 0, 5, 5$$

$$B055_{16} = 11 \cdot 16^3 + 0 \cdot 16^2 + 5 \cdot 16^1 + 5 \cdot 16^0$$

$$16^3 = 4096 \rightarrow 11 \cdot 4096 = 45056$$

$$0 \cdot 256 = 0$$

$$5 \cdot 16 = 80$$

$$5 \cdot 1 = 5$$

Desimal :

$$= 45056 + 0 + 80 + 5 = 45141$$

$$45141 \rightarrow 4, 5, 1, 4, 1$$

Konversi ke BCD:

$$4 \rightarrow 0100$$

$$5 \rightarrow 0101$$

$$1 \rightarrow 0001$$

$$1 \rightarrow 0100$$

$$1 \rightarrow 0001$$

$$(B055)_{16}$$

$$(0100\ 0101\ 0001\ 0100\ 0001)_{\text{BCD}}$$

F. Latihan 6

1. Konversikan bilangan oktal berikut ke bilangan **decimal**

a. $213_{(8)}$
 $= 2 \cdot 8^2 + 1 \cdot 8^1 + 3 \cdot 8^0$
 $= 2 \cdot 64 + 1 \cdot 8 + 3 \cdot 1$
 $= 128 + 8 + 3$
 $= 139_{(10)}$

Jadi, $213_8 = 139_{10}$

b. $57_{(8)}$
 $= 5 \cdot 8^1 + 7 \cdot 8^0$
 $= 5 \cdot 8 + 7$
 $= 40 + 7$
 $= 47_{(10)}$

Jadi, $57_8 = 47_{10}$

2. Konversikan bilangan desimal berikut ini ke bilangan **oktal**

a. $351_{(10)}$
 $351 \div 8 = 43$ sisa 7
 $43 \div 8 = 5$ sisa 3
 $5 \div 8 = 0$ sisa 5

Baca sisa dari terakhir → pertama:

$$\begin{array}{r} 5 \\ 3 \\ \hline \end{array} \qquad \qquad \qquad \begin{array}{r} 7 \\ \\ \end{array}$$

Jadi, $351_{(10)} = 537_{(8)}$

b. $629_{(10)}$
 $629 \div 8 = 78$ sisa 5
 $78 \div 8 = 9$ sisa 6
 $9 \div 8 = 1$ sisa 1
 $1 \div 8 = 0$ sisa 1

Baca sisa dari atas:

$$\begin{array}{r} 1 \\ 1 \\ \hline \end{array} \qquad \qquad \qquad \begin{array}{r} 6 \\ 5 \\ \hline \end{array}$$

Jadi, $629_{(10)} = 1165_{(8)}$

3. Konversikan bilangan oktal berikut ini ke bilangan **biner**

setiap digit oktal = 3 bit biner (karena $2^3 = 8$). Ganti tiap digit dengan 3-bit padanan.

a. 27_8
 $2 \rightarrow 010, 7 \rightarrow 111 \rightarrow 010\ 111$

$\rightarrow 10111$

Jadi, $27_8 = 010111_2 = 10111_2$

- b. 210_8

$$2 \rightarrow 010, 1 \rightarrow 001, 0 \rightarrow 000 \rightarrow$$

$$010\ 001\ 000 \rightarrow 10001000$$

Jadi, $210_8 = 010001000_2 = 10001000_2$

- c. 555_8

$$5 \rightarrow 101 \text{ tiap digit} \rightarrow 101\ 101\ 101$$

Jadi, $555_8 = 101101101_2$

- d. 6543_8

$$6 \rightarrow 110, 5 \rightarrow 101, 4 \rightarrow 100, 3 \rightarrow 011 \rightarrow$$

$$110\ 101\ 100\ 011$$

Jadi, $6543_8 = 110\ 101\ 100\ 011_2$

4. Konversikan bilangan biner berikut ini ke bilangan **Oktal**

- a. 010

$$010 \rightarrow \text{biner } 010 = \text{desimal } 2 \rightarrow$$

$$\text{oktal } 2$$

Jadi, $010_2 = 2_8$

- b. 110011

$$110\ 011 \rightarrow 110 = 6, 011 = 3 \rightarrow$$

$$\text{oktal } 63$$

Jadi, $110011_2 = 63_8$

- c. 1011001

Panjang 7 bit → tambahkan 2 nol di kiri 001 011 001
 $001=1, 011=3, 001=1 \rightarrow \text{oktal } 131$

5

Jadi, $1011001_2 = 131_8$

- d. 1010111000

Panjang 10 bit → tambahkan 2 nol di kiri → 00 101 011 100 0
 (susun kembali jadi 12 bit):
 $001\ 010\ 111\ 000$
 $001=1, 010=2, 111=7, 000=0 \rightarrow$
 $\text{oktal } 1270$

Jadi, $1010111000_2 = 1270_8$

G. Latihan 7

1. Konversikan bilangan decimal berikut ke bilangan **heksadesimal v**

a. $19.889_{(10)}$

Langkah:

- Gunakan pembagian berulang dengan 16.
- Setiap sisa dicatat dan dibaca dari bawah ke atas.

Pembagian	Hasil Bagi	Sisa	Keterangan
$19889 \div 16$	1243	1	$\rightarrow 1$
$1243 \div 16$	77	11	$11 = B$
$77 \div 16$	4	13	$13 = D$
$4 \div 16$	0	4	$4 = 4$

Urutan sisa dari bawah ke atas $\rightarrow 4 D B 1$

Jadi, $(19889)_{10} = (4DB1)_{16}$

b. $2672(10)$

Pembagian	Hasil Bagi	Sisa	Keterangan
$2672 \div 16$	167	0	$\rightarrow 0$
$167 \div 16$	10	7	$\rightarrow 7$
$10 \div 16$	0	10	$10 = A$

Baca sisa dari bawah ke atas $\rightarrow A 7 0$

Jadi, $(2672)_{10} = (A70)_{16}$

2. Konversikan bilangan desimal berikut ini ke bilangan **octal v**

a. $1402_{(10)}$

Pembagian	Hasil Bagi	Sisa
$1402 \div 8$	175	2
$175 \div 8$	21	7
$21 \div 8$	2	5
$2 \div 8$	0	2

Urutan sisa dari bawah $\rightarrow 2 5 7 2$

Jadi, $(1402)_{10} = (2572)_8$

b. $385_{(10)}$

Pembagian	Hasil Bagi	Sisa
$385 \div 8$	48	1
$48 \div 8$	6	0
$6 \div 8$	0	6

Baca dari bawah $\rightarrow 6\ 0\ 1$

Jadi, $(385)_{10} = (601)_8$

3. Konversikan bilangan oktal berikut ini ke bilangan **biner** v

Oktal	Konversi Tiap Digit
$3 \rightarrow 011$, $1 \rightarrow 001$, $5 \rightarrow 101$	011001101
$1 \rightarrow 001$, $4 \rightarrow 100$, $5 \rightarrow 101$	001100101
$5 \rightarrow 101$, $4 \rightarrow 100$	101100
$2 \rightarrow 010$, $6 \rightarrow 110$, $5 \rightarrow 101$	010110101

Jadi Hasilnya adalah :

a. $315_8 = 011001101_2$

b. $145_8 = 001100101_2$

c. $54_8 = 101100_2$

d. $265_8 = 010110101_2$

4. Konversikan bilangan biner berikut ini ke bilangan **heksadesimal**

a. 10100

Tambahkan nol di depan → 0001 0100

= (0001) = 1, (0100) = 4

Jadi, $(10100)_2 = (14)_{16}$

b. 1001010

Tambahkan nol di depan → 0100 1010

= (0100) = 4, (1010) = A

Jadi, $(1001010)_2 = (4A)_{16}$

c. 10111

Tambahkan nol di depan → 0001 0111

= (0001) = 1, (0111) = 7

Jadi, $(10111)_2 = (17)_{16}$

Pertemuan 7

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan
Nim : 312510156
Kelas : TI.25.A2
Mata Kuliah : Matematika Kalkulus
Pertemuan : 7

BARISAN DAN DERET ARITMETIKA

Ubahlah penjumlahan berikut dalam notasi sigma :

1. $1 + 5 + 9 + 13 + 17 + 21 + 25 + 29 + 33 + 37 + 41$

2. $3 + 8 + 15 + 24 + 35 + 48 + 63 + 80 + 99$

3. $\frac{1}{2} + \frac{1}{2.3} + \frac{1}{3.4} + \frac{1}{4.5} + \frac{1}{5.6} + \frac{1}{6.7} + \frac{1}{7.8} + \frac{1}{8.9} + \frac{1}{9.10}$

4. $2 + 5 + 8 + 11 + 14 + 17 + 20 + 23 + 26$

5. $-2 + 0 + 2 + 4 + 6$

6. $-\frac{2}{3} + \frac{3}{9} - \frac{4}{27} + \frac{5}{81} =$

7. Tentukan penjumlahan yang dinyatakan notasi sigma $\sum_{i=1}^4 (i^2 - 3i)$

8. Tentukan penjumlahan yang dinyatakan notasi sigma $\sum_{k=1}^3 \left(\frac{k^2}{(2k+3)} \right)$?

9. **Ubahlah agar batas bawah notasi sigma berikut menjadi 1**

a. $\sum_{i=5}^{15} (i^2 + 5i) =$

b. $\sum_{i=5}^{15} (i^2 - 20i + 99) =$

c. $\sum_{i=4}^{10} (2i - 7) =$

d. $\sum_{i=6}^{15} (9i^2 + 3i) =$

10. **Ubahlah agar batas bawah notasi sigma berikut menjadi 5:**

a. $\sum_{i=3}^9 (i^2 - 7) =$

b. $\sum_{i=2}^{11} (2i + 3) =$

c. $\sum_{i=4}^9 (i + 3) =$

11. Tentukan suku pertama, beda dan rumus suku ke-n serta suku ke-27, dari barisan aritmetika : 1, 5, 9, 13, 17, 21, 25, 29 ...

12. Tentukan suku pertama, beda dan rumus suku ke-n serta suku ke-19 dari barisan aritmetika : 50, 42, 34, 26, 18,

13. Diketahui barisan aritmetika, suku ke-27 adalah 46 dan suku ke-43 adalah 88. Tentukan rumus dari suku ke-n dari barisan Aritmetika itu ?

14. Diketahui jumlah suku ke-tiga dan suku ke-tujuh dari suatu barisan aritmetika adalah 34. Bila suku ke-10 adalah 42
15. Ubahlah : $\sum_{k=0}^5 (4k + 3)$ menjadi bentuk sigma dengan batas bawah 7 ?
16. Bila diketahui : $\sum_{k=5}^{25} (2 - pk) = 0$ maka nilai $\sum_{k=5}^{25} pk = \dots$
17. Hitunglah nilai dari : $\sum_{n=2}^{21} (5n - 6) =$
18. Suku keempat dan suku ketujuh barisan berturut-turut adalah 17 dan 29. Tentukan nilai suku ke-25 barisan tersebut?
19. Suatu deret, diketahui jumlah 5 suku yang pertama = 35 dan jumlah 4 suku yang pertama = 24, hitunglah besar suku yang ke 15 ?
20. Dari suatu barisan aritmetika, suku ketiga adalah 36, jumlah suku kelima dan ketujuh adalah 144. Tentukan besar jumlah 10 suku pertama deret tersebut ?
21. Jumlah n suku pertama dari sebuah deret adalah $n(3n - 1)$. Hitunglah berapa beda dari barisan itu 2 ?
22. Keluarga bapak Suherman mempunyai 6 anak yang usianya pada saat ini membentuk barisan aritmetika. Jika usia anak ke-3 adalah 7 tahun dan usia anak ke-5 adalah 12 tahun, maka hitunglah jumlah usia enam anak tersebut ?
23. Tulislah bentuk dari : $-\frac{1}{z} + \frac{2}{z} - \frac{3}{z} + \frac{4}{z}$ dalam notasi sigma ?
24. Ubahlah batas bawah Notasi sigma berikut menjadi 1 dari notasi sigma : $\sum_{k=0}^4 (3 - 2k)$
25. Diketahui jumlah n suku pertama dari suatu deret aritmetika adalah $S_n = 4n^2 - 32n$. Tentukan suku ke-n dari barisan itu ?
26. Diketahui barisan aritmetika : log2, log4, log8,.... Carilah jumlah 19 suku pertamanya ?
27. Tentukan jumlah 20 suku pertama dari deret Aritmetika : 50 + 47 + 44 + 41 +
28. Diketahui deret Aritmetika dengan suku ke-5 sama dengan tiga kali suku ke-3. Bila $U_9 + U_{10} + U_{11} + U_{12} = 68$, tentukan jumlah 12 suku pertamanya ?

PENYELESAIAN

1. $1 + 5 + 9 + 13 + 17 + 21 + 25 + 29 + 33 + 37 + 41$

$a_1 = 1$, beda $d = 4$.

Suku umum: $a_n = a_1 + (n - 1)d = 1 + 4(n - 1) = 4n - 3$.

banyak suku: $4n - 3 = 41 \Rightarrow 4n = 44 \Rightarrow n = 11$.

Notasi sigma: $\sum_{i=1}^{11} (4i - 3)$.

Jumlah: $S_{11} = \frac{1}{2}(1 + 41) = \frac{11}{2} \cdot 42 = 11 \cdot 21 = 231$.

Jawaban akhir: Notasi sigma $\sum_{i=1}^{11} (4i - 3)$. Jumlah = **231**.

2. $3+8+15+24+35+48+63+80+99$

Pola bentuk $k^2 + 2k$.

- $k = 1 \Rightarrow 1 + 2 = 3$
- $k = 2 \Rightarrow 4 + 4 = 8$
- ... sampai $k = 9 \Rightarrow 81 + 18 = 99$. Jadi suku ke- k : $a_k = k^2 + 2k$, $k = 1, \dots, 9$.

Notasi sigma: $\sum_{k=1}^9 (k^2 + 2k)$

Jika diminta jumlah:

- $\sum_{k=1}^9 k^2 = \frac{9 \cdot 10 \cdot 19}{6} = 285$.
- $\sum_{k=1}^9 2k = 2 \cdot \frac{9 \cdot 10}{2} = 90$.
- Total = $285 + 90 = 375$.

Jawaban akhir: Notasi sigma $\sum_{k=1}^9 (k^2 + 2k)$. Jumlah = **375**.

3. $\frac{1}{2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \frac{1}{4 \cdot 5} + \dots + \frac{1}{9 \cdot 10}$

Suku umum: $\frac{1}{k(k+1)}$ untuk $k = 1$ sampai 9. $\frac{1}{k(k+1)} = \frac{1}{k} - \frac{1}{k+1}$.

Jadi $\sum_{k=1}^9 \frac{1}{k(k+1)} = \sum_{k=1}^9 \left(\frac{1}{k} - \frac{1}{k+1} \right)$.

Deret telescoping \Rightarrow hanya tersisa $1 - \frac{1}{10} = \frac{9}{10}$

Jawaban akhir: Notasi sigma $\sum_{k=1}^9 \frac{1}{k(k+1)}$. Jumlah = $\frac{9}{10}$

4. Barisan aritmetika: $a_1 = 2$, $d=3$

Suku umum: $a_n = 2 + (n - 1)3 = 3n - 1$.

Banyak suku: $(26 - 2)/3 + 1 = 9$.

Notasi sigma: $\sum_{i=1}^9 (3i - 1)$.

Jumlah: $S_9 = \frac{9}{2}(2 + 26) = \frac{9}{2} \cdot 28 = 9 \cdot 14 = 126$.

Jawaban akhir: Notasi sigma $\sum_{i=1}^9 (3i - 1)$. Jumlah = **126**.

5. $-2+0+2+4+6$

Barisan aritmetika: $a_1 = -2$, $d=2$

Suku umum: $a_n = -2 + (n-1)2 = 2n - 4$, $n = 1..5$.

Notasi sigma: $\sum_{n=1}^5 (2n - 4)$.

Jumlah: $S_5 = \frac{5}{2}(-2 + 6) = \frac{5}{2} \cdot 4 = 10$.

Jawaban akhir: Notasi sigma $\sum_{n=1}^5 (2n - 4)$. Jumlah = **10**.

6. $\frac{-2}{3} + \frac{3}{9} - \frac{4}{27} + \frac{5}{81}$

Perhatikan pola: penyebut 3^k , pembilang $k+1$ dan tanda berganti.

Suku ke- k (untuk $k = 1..4$) dapat dituliskan: $a_k = (-1)^k \frac{k+1}{3^k}$.

$k = 1 \Rightarrow -2/3$, $k = 2 \Rightarrow +3/9, \dots$

Notasi sigma: $\sum_{k=1}^4 (-1)^k \frac{k+1}{3^k}$

Disamakan penyebutnya $\frac{2}{3} = -\frac{54}{81}$, $\frac{3}{9} = \frac{27}{81}$, $-\frac{4}{27} = -\frac{12}{81}$, $\frac{5}{81} = \frac{5}{81}$

Total = $(\frac{-54+27-12+5}{81}) = -\frac{34}{81}$

Jawaban akhir: Notasi sigma $\sum_{k=1}^4 (-1)^k \frac{k+1}{3^k}$. Jumlah = **$-\frac{34}{81}$**

7. $\sum_{i=1}^4 (i^2 - 3i)$

Pisah: $\sum i^2 - 3\sum i$.

$= \sum_{i=1}^4 i^2 = 1 + 4 + 9 + 16 = 30$.

$= \sum_{i=1}^4 i = 1 + 2 + 3 + 4 = 10$.

Hasil: $30 - 3 \cdot 10 = 30 - 30 = 0$.

Jawaban akhir: **0**.

8. $\sum_{k=1}^3 \frac{k^2}{2k+3}$

Hitung per suku:

➤ $k = 1: \frac{1}{2+3} = \frac{1}{5}$.

➤ $k = 2: \frac{4}{4+3} = \frac{4}{7}$.

➤ $k = 3: \frac{9}{6+3} = \frac{9}{9} = 1$.

Jumlah: $1 + \frac{1}{5} + \frac{4}{7} = \frac{35+7+20}{35} = \frac{62}{35}$.

Jawaban akhir: **$\frac{62}{35}$** .

9. a) $\sum_{i=5}^{15} (i^2 + 5i)$

Ganti $i = k + 4$ sehingga $k = 1 \dots 11$.

$$\text{Hasil: } \sum_{k=1}^{11} (k^2 + 13k + 36). \text{ Jika perlu jumlah:}$$

$$\begin{aligned}\sum_{k=1}^{11} k^2 &= \frac{11 \cdot 12 \cdot 23}{6} = 506. \\ \sum_{k=1}^{11} k &= 66.\end{aligned}$$

$$\text{Total} = 506 + 13 \cdot 66 + 36 \cdot 11 = 506 + 858 + 396 = \mathbf{1760}.$$

b) $\sum_{i=5}^{15} (i^2 - 20i + 99)$

Ganti $i = k + 4$:

$$(k+4)^2 - 20(k+4) + 99 = k^2 + 8k + 16 - 20k - 80 + 99 = k^2 - 12k + 35.$$

$$\text{Hasil: } \sum_{k=1}^{11} (k^2 - 12k + 35).$$

$$\text{Jumlah: } \sum k^2 = 506, \sum k = 66.$$

$$\text{Total} = 506 - 12 \cdot 66 + 35 \cdot 11 = 506 - 792 + 385 = \mathbf{99}.$$

c) $\sum_{i=4}^{10} (2i - 7)$

$$\text{Ganti } i = k + 3 (k=1..7): 2(k+3) - 7 = 2k + 6 - 7 = 2k - 1.$$

$$\text{Hasil: } \sum_{k=1}^7 (2k - 1).$$

$$\text{Jumlah: } \sum_{k=1}^7 2k = 2 \cdot \frac{7 \cdot 8}{2} = 56. \quad \sum 1 = 7.$$

$$\text{Jadi total} = 56 - 7 = \mathbf{49}.$$

d) $\sum_{i=6}^{15} (9i^2 + 3i)$

$$\text{Ganti } i = k + 5 (k=1..10) : 9(k+5)^2 + 3(k+5) = 9(k^2 + 10k + 25) + 3k + 15 = 9k^2 + 90k + 225 + 3k + 15 = 9k^2 + 93k + 240.$$

$$\text{Hasil: } \sum_{k=1}^{10} (9k^2 + 93k + 240).$$

$$\text{Jumlah: } \sum_{k=1}^{10} k^2 = 385, \sum_{k=1}^{10} k = 55.$$

$$\text{Total} = 9 \cdot 385 + 93 \cdot 55 + 240 \cdot 10 = 3465 + 5115 + 2400 = \mathbf{10980}.$$

10. a) $\sum_{i=3}^9 (i^2 - 7)$

$$\text{Tulis: } (3^2 - 7) + (4^2 - 7) + \sum_{i=5}^9 (i^2 - 7).$$

$$\text{Hitung bagian awal: } (9 - 7) + (16 - 7) = 2 + 9 = 11.$$

Jika diminta jumlah total: $\sum_{i=5}^9 i^2 = 25 + 36 + 49 + 64 + 81 = 255.$

$$\sum_{i=5}^9 (i^2 - 7) = 255 - 5 \cdot 7 = 255 - 35 = 220.$$

Total = $11 + 220 = 231.$

b) $\sum_{i=2}^{11} (2i + 3)$

Tulis: $(2 \cdot 2 + 3) + (2 \cdot 3 + 3) + (2 \cdot 4 + 3) + \dots + \sum_{i=5}^{11} (2i + 3).$

Nilai awal: $7 + 9 + 11 = 27.$

Jika diminta jumlah total:

$$\sum_{i=5}^{11} 2i = 2 \cdot \sum_{i=5}^{11} i = 2 \cdot (\sum_1^{11} - \sum_1^4) = 2 \cdot (66 - 10) = 2 \cdot 56 = 112.$$

$$= \sum_{i=5}^{11} 3 = 3 \cdot 7 = 21.$$

Sisa = $112 + 21 = 133.$

Total = $27 + 133 = 160.$

c) $\sum_{i=4}^9 (i + 3)$

Tulis: $(4 + 3) + \sum_{i=5}^9 (i + 3) = 7 + \sum_{i=5}^9 i + 5 \cdot 3.$

$$= \sum_{i=5}^9 i = \sum_1^9 - \sum_1^4 = 45 - 10 = 35.$$

Sisa = $35 + 15 = 50.$ Total = **$7 + 50 = 57.$**

11. Diketahui barisan: 1, 5, 9, 13, 17, 21, 25, 29, ...

Suku pertama (a_1): $a_1 = 1$

Beda (d): $d = 5 - 1 = 4$

Jawaban: $a_1 = 1, d = 4$

Rumus suku ke-n:

$$\begin{aligned}
U_n &= a_1 + (n - 1)d \\
U_n &= 1 + (n - 1) \times 4 \\
U_n &= 4n - 3 \\
&= U_n = 4n - 3
\end{aligned}$$

Suku ke-27: $U_{27} = 4(27) - 3 = 108 - 3 = 105$

$= U_{27} = 105$

12. Diketahui barisan: 50, 42, 34, 26, 18, ...

Suku pertama (a_1): $a_1 = 50$

Beda (d): $d = 42 - 50 = -8$

Rumus suku ke-n:

$$\begin{aligned}
U_n &= a_1 + (n - 1)d \\
U_n &= 50 + (n - 1)(-8) \\
U_n &= 50 - 8n + 8 = 58 - 8n
\end{aligned}$$

Suku ke-19 : $U_{19} = 58 - 8(19) = 58 - 152 = -94$

13. Diketahui: $U_{27} = 46$, $U_{43} = 88$

Rumus umum: $U_n = a + (n - 1)d$
Substitusi ke dua data: $\begin{aligned} U_{27} &= a + 26d = 46 \\ U_{43} &= a + 42d = 88 \end{aligned}$

Kurangkan (2) - (1): $(a + 42d) - (a + 26d) = 88 - 46$
 $42 - 21 = 27$
 $16d = 27 \Rightarrow d = \frac{27}{16} = 1.6875$

Substitusi ke (1): $\begin{aligned} a + 26(\frac{27}{16}) &= 46 \\ 546 &= 46 \\ a + \frac{27}{8} &= 46 \\ a &= 46 - 3.375 = 2.625 \end{aligned}$

Rumus suku ke-n: $\begin{aligned} U_n &= a + (n - 1)d = 2.625 + (n - 1)(\frac{27}{8}) \\ U_n &= 2.625 + \frac{27n - 27}{8} = \frac{27n - 189}{8} ? \\ U_n &= 2.625 + 3.375(n - 1) \\ U_n &= \frac{2.625}{4} + \frac{27}{8}(n - 1) \end{aligned}$

Jawaban:

- $a = -22.25$
- $d = \frac{21}{8} = 2.625$
- Rumus suku ke-n: $U_n = -22.25 + 2.625(n - 1)$

14. Diketahui jumlah suku ke-3 dan ke-7 = 34, dan suku ke-10 = 42

$$\begin{aligned} U_3 + U_7 &= 34 \\ (a + 2d) + (a + 6d) &= 34 \Rightarrow 2a + 8d = 34 \Rightarrow a + 4d = 17(1) \\ U_{10} &= a + 9d = 42(2) \end{aligned}$$

$$\text{Dari (2)-(1): } 5d = 25 \Rightarrow d = 5.$$

$$\text{Substitusi ke (1): } a + 20 = 17 \Rightarrow a = -3.$$

Hasil: $a=-3, d=5$ $U_n = -3 + (n-1)5 = 5n-8.$

15. $\sum_{k=0}^5 (4k + 3)$ ubah batas bawah jadi 7.

$$\text{Gunakan } m = k + 7 \Rightarrow k = m - 7 \rightarrow 4k + 3 = 4(m - 7) + 3 = 4m - 25$$

$$\text{Saat } k = 0 \Rightarrow m = 7, k=5 \Rightarrow m=12.$$

Hasil: $\sum_{m=7}^{12} (4m - 25)$

16. $\sum_{k=5}^{25} (2 - pk) = 0$

$$\Sigma 2 - p \sum k = 0 \Rightarrow 2(21) - p(315) = 0 \Rightarrow 42 - 315p = 0 \Rightarrow p = \frac{2}{15}$$

$$\text{Hasil } \sum_{k=5}^{25} pk = p \sum k = \frac{2}{15} \times 315 = 42.$$

17. $\sum_{i=1}^{21} (25n - 6)$

$$\text{Bentuk konstanta } 21(25n - 6) = 525n - 126.$$

$$\text{Jawaban: } 525n - 126.$$

18. Suku ke-4 = 17, suku ke-9 = 29

$$U_4 = a + 3d = 17,$$

$$U_9 = a + 8d = 29 \Rightarrow 5d = 12 \Rightarrow d = 2.4$$

$$\text{Substitusi } a + 7.2 = 17 \Rightarrow a = 9.8.$$

$$U_{25} = a + 24d = 9.8 + 57.6 = 67.4$$

$$\text{Hasil: } a = 9.8, d = 2.4, U_{25} = 67.4$$

19. Jumlah 5 suku pertama = 35, jumlah 4 suku pertama = 24.

$$S_5 - S_4 = U_5 = 35 - 24 = 11.$$

Rumus $S_n = \frac{n}{2}(2a + (n-1)d)$:

$$S_5 = \frac{5}{2}(2a + 4d) = 35 \Rightarrow 2a + 4d = 14 \\ S_4 = \frac{4}{2}(2a + 3d) = 24 \Rightarrow 2a + 3d = 12$$

Selisih $\rightarrow d = 2, a = 3$.

Hasil: $a=3, d=2, U_{15} = a + 14d = 3 + 28 = 31$.

20. Barisan aritmetika, $U_3 = 36$, jumlah $U_5 + U_7 = 144$.

$$U_3 = a + 2d = 36, U_5 + U_7 = (a + 4d) + (a + 6d) = 2a + 10d = 144.$$

Dari (1): $a = 36 - 2d$, substitusi \rightarrow

$$2(36 - 2d) + 10d = 144 \Rightarrow 72 - 4d + 10d = 144 \Rightarrow 6d = 72 \Rightarrow d = 12, a = 12.$$

$$U_8 = a + 7d = 12 + 84 = 96.$$

Hasil: $a = 12, d = 12, U_8 = 96$.

21. Jumlah n suku: $S_n = \frac{n}{2}(3n - 1)$.

Suku pertama $U_1 = 1$.

$$U_n = S_n - S_{n-1} = \frac{n}{2}(3n - 1) - \frac{n-1}{2}[3(n-1) - 1] = \frac{1}{2}[3n^2 - n - (3n^2 - 7n + 4)] \\ = \frac{1}{2}(6n - 4) = 3n - 2.$$

$U_1 = 1$ bila $n = 1$.

Hasil: $U_n = 3n - 2$.

22. Anak ke-1 umur 4 tahun, beda 2 tahun, total 6 anak.

$$a = 4, d = 2, n = 6, S_6 = 26(2 \cdot 4 + 5 \cdot 2) = 3(8 + 10) = 54.$$

Total umur = 54 tahun.

23. Barisan: $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots$

Suku ke-n: $U_n = \frac{1}{n+1}$

Hasil: $U_n = \frac{1}{n+1}$

24. Ubah batas bawah menjadi 1: $\sum_{k=0}^4 (3 - 2k)$

Gunakan $i = k + 1 \Rightarrow k = i - 1$, batas baru $1 \rightarrow 5$:

$$3 - 2(i - 1) = 3 - 2i + 2 = 5 - 2i$$

Hasil: $\sum_{i=1}^5 (5 - 2i)$

25. Diketahui $S_n = 4n^2 - 3n$.

Cari $U_n = S_n - S_{n-1}$

$$\begin{aligned} U_n &= (4n^2 - 3n) - [4(n-1)^2 - 3(n-1)] = 4n^2 - 3n - (4n^2 - 8n + 4 - 3n + 3) \\ &= 4n^2 - 3n - 4n^2 + 8n - 4 + 3n - 3 = 8n - 7. \end{aligned}$$

Hasil: $U_n = 8n - 7$.

26. Barisan logaritma: \log_2, \log_4, \log_8

$$\begin{aligned} \log 4 &= 2 \log 2, \log 8 = 3 \log 2 \\ \rightarrow a &= \log 2, \log = 2 \end{aligned}$$

$$S_{19} = \frac{19}{2} [2a + (19-1)d] = \frac{19}{2} (20\log 2) = 190\log 2 \approx 57.19$$

Jawaban: $S_{19} = 190\log 2 \approx 57.19$

27. 20 suku pertama dari 50, 47, 44, 41,...

$$a = 50, d = -3.$$

$$\begin{aligned} S_{20} &= \frac{20}{2} [2(50) + (19)(-3)] = 10(100 - 57) = 430. \\ \text{Hasil: } S_{20} &= 430. \end{aligned}$$

28. Diketahui $U_5 = 3x, U_9 = 7, U_{11} = 9x, U_{12} = 10x, U_8 + U_{10} + U_{12} = 68$

Gunakan $U_n = a + (n-1)d$.

$$U_5 = a + 4d = 3x, U_9 = a + 8d = 7x, U_{11} = a + 10d = 9x.$$

Selisih $4d = 4x \Rightarrow d = x, a = -x$.

$$U_8 = -x + 7x = 6x, U_{10} = -x + 9x = 8x, U_{12} = -x + 11x = 10x.$$

$$\text{Jumlah } 6x + 8x + 10x = 24x = 68 \Rightarrow x = \frac{17}{6}.$$

$$\begin{aligned} \text{Jumlah 12 suku pertama: } S_{12} &= \frac{12}{2} [2(-x) + (11)(x)] = 6(-2x + 11x) = \\ &= 6(9x) = 54x = 54 \times \frac{17}{6} = 153. \text{ Hasil: } S_{12} = 153. \end{aligned}$$

Pertemuan 6

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 2

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 3

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 4

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Creating PDFs in JavaScript is awesome!

Pertemuan 5

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

Nim : 312510156

Kelas : TI.25.A2

Pertemuan : 1

$$1. \frac{x+2}{4-2x} \geq 1-x$$

$$\text{Jawab : } \frac{x+2}{4-2x} - (1-x) \geq 0$$

$$= \frac{x+2-(1-x)(4-2x)}{4-2x} \geq 0 = x + 2 - 2x^2 + 6x - 4 = \frac{-2x^2 + 7x - 2}{4-2x} \geq 0$$

$$ax^2 + bx + c = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$= -(-2x^2 + 7x - 2) = 0 \quad x = \frac{-(-7) \pm \sqrt{(-7)^2 - 4(2)(2)}}{2(2)}$$

$$= 2x^2 - 7x + 2 = 0$$

$$x = \frac{7 \pm \sqrt{49-16}}{4} = \frac{7 \pm \sqrt{33}}{4}$$

$$\text{HP} = \left\{ X \geq \frac{7+\sqrt{33}}{4} \right\} \text{ atau } \left\{ \frac{7-\sqrt{33}}{4} \leq X < 2 \right\}$$

$$2. \frac{x-2}{x^2} \leq \frac{x+1}{x+3}$$

$$\text{Jawab : } \frac{x-2}{x^2} - \frac{x+1}{x+3} \leq 0$$

$$\frac{(x-2)(x+3) - x^2(x+1)}{x^2(x+3)} \leq 0$$

$$\frac{x^2+x-6 - x^3-x^2}{x^2(x+3)} \leq 0$$

$$\frac{-x^3+x-6}{x^2(x+3)} \leq 0$$

$$\text{HP} = \{ x < -3 \} \text{ atau } \{ -2 \leq x < 0 \} \text{ dan } \{ x > 0 \}$$

$$3. \quad |2-x| + |3-2x| \leq 3$$

$$\begin{array}{l} \downarrow \\ x = 2 \end{array} \quad \begin{array}{l} \downarrow \\ x = \frac{3}{2} = 1,5 \end{array}$$

Jawab :

Kasus 1

Interval $x \leq 1,5$

$$\begin{aligned} |2-x| &= 2-x & = (2-x) + (3-2x) &= 5-3x \leq 3 \\ |3-2x| &= 3-2x & &= -3x \leq -2 \\ & & &= x \geq \frac{2}{3} = \left[\frac{2}{3}, 1,5 \right] \end{aligned}$$

Kasus 2

Interval $x > 2$

$$\begin{aligned} |2-x| &= x-2 & = (x-2) + (2x-3) &= 3x-5 \leq 3 \\ |3-2x| &= 2x-3 & &= 3x \leq 8 \\ & & &= x \leq \frac{8}{3} \left[2, \frac{8}{3} \right] \\ & & &H\ddot{o}p \left\{ \frac{2}{3} \leq x \leq \frac{8}{3} \right\} \end{aligned}$$

$$4. \quad |x+1|^2 + 2|x+2| \geq 2$$

$$\text{Jawab : } |x+1|^2 + 2|x+2| \geq 2$$

$$|x+1| = 0, x = -1$$

$$|x+2| = 0, x = -2$$

$$x \leq -2, -2 < x \leq -1, x > -1$$

Kasus 1

Interval $x \leq -2$

$$(|x+1|)^2 + 2|x+2| = (-(x+1))^2 + 2(-(x+2))$$

$$= (x+1)^2 + (-2(x+2))$$

$$= (x+1)^2 - 2x - 4 \geq 2$$

$$= x^2 + 2x + 1 - 2x - 4 \geq 2$$

$$\begin{aligned}
&= x^2 - 3 \geq 2 \\
&= x^2 \geq 5 \\
&= x \geq \sqrt{5} \\
&= x \leq -\sqrt{5}
\end{aligned}$$

Kasus 2

Interval $-2 < x \leq -1$

$$\begin{aligned}
(|x+1|)^2 + 2|x+2| &= (x+1)^2 + 2(x+2) \\
&= x^2 + 2x + 1 + 2x + 4 \\
&= x^2 + 4x + 5 \\
&= x^2 + 4x + 5 \geq 2 \\
&= x^2 + 4x + 3 \geq 0 \\
(x+1)(x+3) &\geq 0
\end{aligned}$$

$x \leq -3$ atau $X \geq -1$, yang memenuhi syarat hanya $X \geq -1$ jadi $x = -1$

Kasus 3

Interval $x > -1$

$$\begin{aligned}
(|x+1|)^2 + 2|x+2| &= (x+1)^2 + 2(x+2) \\
&= x^2 + 2x + 1 + 2x + 4 \\
&= x^2 + 4x + 5 \\
&= x^2 + 4x + 5 \geq 2 \\
&= x^2 + 4x + 3 \geq 0 \\
(x+1)(x+3) &\geq 0
\end{aligned}$$

$x \leq -3$ atau $X \geq -1$, hanya $X \geq -1$ yang memenuhi syarat

Jadi HP nya adalah, $\{X \leq -\sqrt{5} \text{ atau } X \geq -1\}$

5. $2x + 3 \geq |4x + 5|$

Jawab : $2x + 3 \geq |4x + 5|$

$$4x + 5 = 0$$

$$4x = -5$$

$$x = \frac{-5}{4}$$

$$\text{jika } x \geq \frac{5}{4}$$

$$\text{jika } x < -\frac{5}{4}$$

$$2x + 3 \geq 4x + 5$$

$$2x + 3 \geq -(4x + 5)$$

$$\frac{-2x \geq 2}{-x \geq 1} : 2$$

$$2x + 3 \geq -4x - 5$$

$$= x \leq -1$$

$$\frac{-6x \geq -8}{3x \geq -4} : 2$$

$$= x \geq \frac{-4}{3}$$

$$H_p \left\{ -\frac{4}{3} \leq x \leq -1 \right\}$$

6. $||x| + 3x| \leq 2$

Jawab :

Kasus 1

$$\text{jika } x \geq 0, |x| = x$$

$$|x| + 3x \leq 2$$

$$x + 3x \leq 2$$

$$4x \leq 2$$

$$x \leq \frac{2}{4}$$

$$x \leq \frac{1}{2}$$

$$\{ 0 \leq x \leq \frac{1}{2} \}$$

Kasus 2

$$\text{jika } x < 0, |x| = -x$$

$$|x| + 3x \leq 2$$

$$-x + 3x \leq 2$$

$$2x \leq 2$$

$$x \leq \frac{2}{2}$$

$$x \leq 1$$

$$-1 \leq x$$

$$\{ -1 \leq x \leq 0 \}$$

$$H_p \left\{ -1 \leq x \leq \frac{1}{2} \right\}$$

Pertemuan 2

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : matematika

Pertemuan : 2 (dua)

SOAL

1. Misalkan $A = \{2, 3, 4, 5, 6, 7, 8, 9\}$, dan relasi R didefinisikan oleh : a membagi b , dimana $a, b \in A$, tentukan apakah bersifat transitif atau tidak transitif?
2. R merupakan relasi pada himpunan bilangan asli N yang didefinisikan oleh : $R : a + b = 5, a, b \in A$, tentukan apakah bersifat transitif atau tidak transitif?
3. Misalkan E dan T relasi pada $A = \{9, 8, 7, 6\}$.
 $E = \{(a, b) \mid b = 15 - a\}$ "b sama dengan $(15 - a)$ "
 $T = \{(a, b) \mid a < b\}$ "a lebih kecil dari b"
Tentukan dengan teliti ToE ?
4. Tentukan domain dan range dari fungsi di bawah ini :
 - A. $f(x) = 3 + \sqrt{2 - 4x}$
 - B. $f(x) = \sqrt{\frac{x(x-3)}{x-1}}$
 - C. $f(x) = 3x - \frac{1}{x} + 2$
 - D. $f(x) = \sqrt{x^2 - 5x + 6}$
 - E. $f(x) = \sqrt{4 - x}$
 - F. $f(x) = |x|(x+2)$
 - G. $f(x) = \sqrt{3 - |x - 2|}$
 - H. $f(x) = x^2 - 5x + 6$
 - I. $f(x) = 3 + \sqrt{x - 4}$
 - J. $f(x) = 3 + \sqrt{4 - x^2}$
5. Apakah $f \circ g$ terdefinisi? Bila ya, tentukan rumusan dari $f \circ g$ dan domain dari $f \circ g$.
 - A. $f(x) = \sqrt{4 - x}$
 - B. $f(x) = 3 + \sqrt{2 - 4x}$
 - C. $f(x) = \sqrt{\frac{x(3-x)}{x-1}}$
 - D. $f(x) = |x|(x+2)$
 - E. $f(x) = x^2 - 5x + 6$

JAWABAN

1. Relasi R pada himpunan A :

$$R = \{(2,2), (2,4), (2,6), (2,8), (3,3), (3,6), (3,9), (4,4), (4,8)\}$$

Ketika $(2,4) \in R$ dan $(4,8) \in R$ terlihat bahwa $(2,8) \in R$

Jadi, R **bersifat transitif**

2. Relasi R pada himpunan 4 , yaitu :

$$R \{(1,4), (4,1), (2,3), (3,2)\}$$

Ketika $(1,4) \in R$ dan $(4,1) \in R$, tetapi $(1,1) \in R$

Jadi, R tidak bersifat transitif

3. $E = \{(9,6), (8,7), (7,8), (6,9)\}$

$$T = \{(6,7), (6,8), (6,9), (7,8), (7,9), (8,9)\}$$

Dari E setiap a dipetakan ke $b = 15-a$. Jadi syarat komposisi menjadi : $(a,c) \in T$ dengan $b = 15-a$, yaitu $(b < c)$ yang berarti menghasilkan :

$$ToE = \{(9,7), (9,8), (9,9), (8,8), (8,9), (7,9)\} \text{ atau } ToE = \{(a,c) \in A \times A \mid a + c > 15\}$$

4. A. $f(x) = 3 + \sqrt{2-4x}$

Domain

$$\text{Syarat : } 2 - 4x > 0 \Rightarrow -4x \geq -2 \Rightarrow x \leq \frac{1}{2}$$

Range

$$y = 3 + \sqrt{2-4x}$$

$$y \geq 3, \sqrt{2-4x} \geq 0 = \sqrt{2-4x} = y-3$$

$$2-4x = (y-3)^2$$

$$x = \frac{2-(y-3)^2}{4}$$

$$\text{Maka, } \frac{2-(y-3)^2}{4} \leq \frac{2}{4} = \frac{1}{2}$$

B. $f(x) = \sqrt{\frac{x-3}{x-1}}$

Domain

$$\text{Pembagi } \neq 0 \rightarrow x \neq 1$$

$$\text{Pecah tanda } \frac{x-3}{x-1} \geq 0$$

Titik kritis : 1 dan 3

Uji interval : $\{-\infty, 1\}$ positif, $\{1, 3\}$ negatif, $\{3, \infty\}$ positif.

Range

$$y \in \{0, 1\} / y \in \{1, \infty\}$$

$$0 \leq y < 1$$

$$1 < y < \infty$$

C. $f(x) = 3x - \frac{1}{x} + 2$

Domain : $x \neq 0 \rightarrow \mathbb{R} \setminus \{0\}$

Range : semuanya bilangan real, setiap y memiliki solusi $x \neq 0$

D. $f(x) = \sqrt{x^2 - 5x + 6}$

Domain : $x^2 - 5x + 6 \geq 0$

$$\{x-2\}x-3 \geq 0 \rightarrow x \leq 2 \text{ atau } x \geq 3$$

$$\{-\infty, 2\} \cup \{3, \infty\}$$

Range : keduanya ke ∞ saat $|x| \rightarrow \infty$, nilai 0 tercapai di $x = 2$ atau $x = 3$

$$R = \{0, \infty\}$$

E. $f(x) = \sqrt{4 - x}$

Domain : $4-x \geq 0 \Rightarrow x \leq 4$. $D = -\infty, 4$

Range : $x \geq 0$: $f = x^2 + 2x$, nilai mulai dari 0 ke ∞

$$x < 0 : f = -x^2 - 2x = 1 - (x+1)^2 \rightarrow \{-\infty, 1\}$$

F. $f(x) = |x| (x \neq 2)$

Domain : tidak ada perubahan -> **semua real**

Range : $x \geq 0$: $f = x^2 + 2x$, nilai mulai dari 0 ke ∞

$$x < 0 : f = -x^2 - 2x = 1 - (x+1)^2 \rightarrow \{-\infty, 1\}$$

G. $f(x) = \sqrt{3x - |x-2|}$

Domain : $3 - |x-2| \geq 0 \Leftrightarrow |x-2| \leq 3$

$$-3 \leq x-2 \leq 3 \Leftrightarrow -1 \leq x \leq 5$$

$$D = \{-1, 5\}$$

Range : $y = f(x) = \sqrt{3 - |x-2|} \geq 0$, maka $y \geq 0$

$$y_{\max} = \sqrt{3 - 0} = \sqrt{3}$$

$$y_{\min} = 0$$

$$R : \{0, \sqrt{3}\}$$

H. $f(x) = x^2 - 5x + 6$

Domain : $x \in \mathbb{R}$

Range : $x_{\min} = \frac{-b}{2a} = \frac{5}{2} \rightarrow \left\{\frac{5}{2}\right\} \rightarrow \left\{\frac{5}{2}\right\}^2 - 5 \left\{\frac{5}{2}\right\} + 6 = \frac{25}{4} - \frac{25}{2} + 6 = \frac{25-50+24}{4} = \frac{-1}{4} = -0,25$

I. $f(x) = 3 + \sqrt{x - 4}$

Domain : $x - 4 \geq 0 \Rightarrow x \geq 4$

Range : $x \rightarrow \infty, \sqrt{x - 4} \rightarrow \infty \Rightarrow y \rightarrow \infty$

$$y = 3 + \sqrt{x - 4} \quad \sqrt{x - 4} \geq 0$$

$$\text{nilai minimum } x = \sqrt{4} - 4 = 0 \quad y_{\min} = 3$$

J. $f(x) = 3\sqrt{4 - x^2}$

Domain : $3 - x^2 \geq 0 \Rightarrow x^2 \leq 4 \Rightarrow -2 \leq x \leq 2 \quad D = \{-2, 2\}$

$$\text{Range : o } \sqrt{4 - (\pm 2)^2} = \sqrt{0} = 0 \quad y_{\min} 3 + 0 = 3$$

$$\text{o } \sqrt{4 - 0} = \sqrt{4} = 2 \Rightarrow y_{\max} = 3 + 2 = 5 \quad R = \{3, 5\}$$

5. A. $f(x) = \sqrt{4 - x} \quad g(x) = |x|$

$$(f \circ g)(x) = f(g(x)) = \sqrt{4 - |x|}$$

($f \circ g$) terdefinisi dengan dominannya $\{-4, 4\}$

B. $f(x) = \sqrt{2 - 4x} \quad g(x) = 3x - \frac{1}{x} + 2$

$$(f \circ g)(x) = 3 + \sqrt{-6 - 12x + \frac{4}{x}}$$

Terdefinisi dengan dominan tertentu $\{-\infty, \frac{-3-\sqrt{57}}{12}\} \cup \{0, \frac{-3-\sqrt{57}}{12}\}$

C. $f(x) = \sqrt{\frac{x(x-3)}{x-1}} \quad g(x) = \sqrt{x^2 - 5x + 6}$

$$(f \circ g)(x) = \frac{\sqrt{x^2 - 5x + 6}, (\sqrt{x^2 - 5x + 6} - 3)}{\sqrt{x^2 - 5x + 6 - 1}}$$

Terdefinisi dengan dominannya $\{-\infty, \frac{5-\sqrt{37}}{2}\} \cup \{\frac{5-\sqrt{5}}{2}, 2\} \cup \{3, \frac{5+\sqrt{5}}{2}\} \cup \{\frac{5+\sqrt{37}}{2}, \infty\}$

D. $f(x) = |x|(x+2) \quad g(x) = \sqrt{3 - |x - 2|}$

$$(f \circ g)(x) = (\sqrt{3} - |x-2|)(\sqrt{3} - |x-2| + 2)$$

Terdefinisi dengan dominannya $\{-1, 5\}$

E. $f(x) = x^2 - 5x + 6 \quad g(x) = 3 + \sqrt{x - 4}$

$$(f \circ g)(x) = (3 + \sqrt{x} - 4)^2 - 5(3 + \sqrt{x} - 4) + 6 = x - 4 + \sqrt{x} - 4$$

Terdefinisi dengan dominannya $\{4, \infty\}$

Pertemuan 3

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 3 (tiga)

Jawaban

1. $\lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x}$

Jawab :

$$\begin{aligned}\lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x} &= \lim_{x \rightarrow 0} \frac{2 - \sqrt{4-3x}}{x} \cdot \frac{2 + \sqrt{4-3x}}{2 + \sqrt{4-3x}} = \lim_{x \rightarrow 0} \frac{(2)^2 - (\sqrt{4-3x})^2}{x(2 + \sqrt{4-3x})} = \\ \lim_{x \rightarrow 0} \frac{4 - (4-3x)}{x(2 + \sqrt{4-3x})} &= \lim_{x \rightarrow 0} \frac{3x}{x(2 + \sqrt{4-3x})} = \\ \lim_{x \rightarrow 0} \frac{3}{2 + \sqrt{4-3x}} &= \frac{3}{2 + \sqrt{4-3(0)}} = \frac{3}{2 + \sqrt{4}} = \frac{3}{4}\end{aligned}$$

2. Tentukan $\frac{f(x+h)-f(x)}{h}$ jika diketahui $f(x) = 3x^2 + 2x + 6$?

Jawab:

$$\begin{aligned}\lim_{h \rightarrow 0} \frac{f(x+h)-f(x)}{h} &= \lim_{h \rightarrow 0} \frac{(3(x+h)^2 + 2(x+h)+6) - (3x^2 + 2x+6)}{h} \\ \lim_{h \rightarrow 0} \frac{(3(x^2+2xh+h^2)+2x+2h+6)-(3x^2+2x+6)}{h} &= \\ \lim_{h \rightarrow 0} \frac{(3x^2+6xh+3h^2+2x+2h+6)-(3x^2+2x+6)}{h} &= \\ \lim_{h \rightarrow 0} \frac{\cancel{(3x^2+2x+6)} + 6xh + 3h^2 + 2h}{\cancel{h}} &= \lim_{h \rightarrow 0} 6x + 3(0) + 2 = 6x + 2\end{aligned}$$

3. $\lim_{x \rightarrow 2} \frac{2x^2 - 3x - 2}{x - 2}$

Jawab:

$$\begin{aligned}\lim_{x \rightarrow 2} \frac{(2x+1)(2-x)}{x-2} &= \lim_{x \rightarrow 2} 2x + 1 \\ \lim_{x \rightarrow 2} 2(2) + 1 &= 5\end{aligned}$$

4. $\lim_{x \rightarrow 9} \frac{x-9}{\sqrt{x-3}}$

Jawab:

$$\lim_{x \rightarrow 9} \frac{x-9}{\sqrt{x-3}} \cdot \frac{\sqrt{x+3}}{\sqrt{x+3}} = \lim_{x \rightarrow 9} \frac{x-9(\sqrt{x+3})}{\cancel{x-9}} = \sqrt{x+3}$$
$$\lim_{x \rightarrow 9} \sqrt{9+3} = 3+3=6$$

5. $\lim_{x \rightarrow 0} \sin \left(\frac{1}{x} \right)$

Jawab:

Nilai $\frac{1}{x}$ adalah ∞ , karena $x \rightarrow 0$ jadi limit tidak ada

6. $f(x) = \begin{cases} x^2 + 1, & x \leq 1 \\ -x + 2, & x > 1 \end{cases}$ cari $\lim_{x \rightarrow 1^-}$ dan $\lim_{x \rightarrow 1^+}$

Jawab:

- Untuk $x \leq 1 \Rightarrow \lim_{x \rightarrow 1^-} f(x) = 1^2 + 1 = 2$

- Untuk $x > 1 \Rightarrow \lim_{x \rightarrow 1^+} f(x) = -x + 2 \rightarrow 1^+ = \lim_{x \rightarrow 1^+} f(x) = -1 + 2 = 1$

Karena $2 \neq 1$ maka limit tak ada

7. $g(x) = |x-2| - 3x$, cari limit kiri dan kanan saat $x \rightarrow 2$

Jawab:

- $x < 2$

$$\lim_{x \rightarrow 2^-} |x-2| - 3x = \lim_{x \rightarrow 2^-} (-x+2) - 3x = \lim_{x \rightarrow 2^-} -4x + 2 = \lim_{x \rightarrow 2^-} -4(2) + 2 =$$
$$\lim_{x \rightarrow 2^-} -8 + 2 = -6$$

- $x > 2$

$$\lim_{x \rightarrow 2^+} |x-2| - 3x = \lim_{x \rightarrow 2^+} (x-2) - 3x = \lim_{x \rightarrow 2^+} -2x - 2 = \lim_{x \rightarrow 2^+} -2(2) - 2 = -4 - 2$$
$$= -6$$

Jadi $\lim_{x \rightarrow 2} g(x) = 6$

8. $f(x) = \frac{|x-2|}{x-2}$ hitung $\lim_{x \rightarrow 2^-} f(x)$, $\lim_{x \rightarrow 2^+} f(x)$, $\lim_{x \rightarrow 2} f(x)$

Jawab:

Jawab No. 8 :

- $x < 2$

$$\lim_{x \rightarrow 2^-} \frac{|x-2|}{x-2} = \frac{-|x-2|}{x-2} = -1$$

$$\lim_{x \rightarrow 2^-} f(x) = -1$$

- $x > 2$

$$\lim_{x \rightarrow 2^+} f(x) = \frac{|x-2|}{x-2} = \frac{(x-2)}{x-2} = 1$$

Karena limit kiri (-1) ≠ kanan (1), maka limit tidak ada

9. Tentukan $\lim_{x \rightarrow \infty} \frac{x^2+2x+5}{2x^2+4}$

Jawab:

Untuk limit ke $\pm \infty$, bagi pembilang dan penyebut oleh x^2 : $\frac{x^2+2x+5}{2x^2+4} = \frac{1 + \frac{2}{x^2} + \frac{5}{x^2}}{2 + \frac{4}{x^2}}$

Saat $x \rightarrow -\infty$ semua suku termasuk $\frac{1}{x}, \frac{2}{x^2}, \frac{5}{x^2} \rightarrow 0$ jadi limitnya : $\frac{1}{2}$

10. Tentukan $\lim_{x \rightarrow -\infty} \frac{2x+5}{2x^2+4}$

Jawab:

Ketika $\frac{2x+5}{2x^2+4} = \frac{\frac{2}{x^2} + \frac{5}{x^2}}{2 + \frac{4}{x^2}}$ saat $x \rightarrow -\infty$

- $\frac{2}{x} \rightarrow 0^-$

- $\frac{5}{x^2} \rightarrow 0^+$

- $\frac{4}{x^2} \rightarrow 0^+$

Jadi hasilnya : $\lim_{x \rightarrow -\infty} \frac{2x+5}{2x^2+4} = \frac{0}{2} = 0$

11. Tentukan $\lim_{x \rightarrow -\infty} \sqrt{x^2 + x + 3} + x$

Jawab:

Kalikan dan bagi dengan : $\sqrt{x^2 + x + 3} + x : \sqrt{x^2 + x + 3} + x = \frac{x+3}{\sqrt{x^2+x+3}+x} = -\frac{1}{2}$

$$12. \text{ Tentukan } \lim_{x \rightarrow 2} \left(\frac{1}{1-x} \right) \cdot \left(\frac{2}{x-x^2} \right)$$

Jawab:

$$\text{Samakan penyebut } \frac{1}{1-x} \cdot \frac{2}{x-x^2} = \frac{x-2}{x(1-x)} = \frac{2-2}{2(1-2)} = 0$$

Pertemuan 4

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 4 (empat)

LATIHAN SOAL

1. Periksa apakah fungsi berikut kontinu di $x = 2$, jika tidak sebutkan alasannya?

a. $f(x) = \frac{x^2 - 4}{x - 2}$

b. $f(x) = \begin{cases} \frac{x^2 - 4}{x - 2}, & x \neq 2 \\ 3, & x = 2 \end{cases}$

c. $f(2) = 2^2 - 1 = 3 \quad f(2) = x^2 - 1 = 3$

2. Tentukan konstanta a agar fungsi

$$f(x) = \begin{cases} x + a, & x < 2 \\ ax^2 - 1, & x \geq 2 \end{cases}$$

Kontinu di $x = 2$?

3. $\lim_{x \rightarrow 2} f(x) = \frac{x^2 - 5x + 6}{6x - 12} \rightarrow \text{Bentuk tak tentu } \frac{0}{0}$

4. $\lim_{x \rightarrow 3} f(x) = \frac{x^2 + x - 12}{x^2 + 3x - 18} \rightarrow \text{Bentuk tak tentu } \frac{0}{0}$

Jawaban

1. A. $f(x) = \frac{x^2 - 4}{x - 2}$, $x \neq 2$, $f(2) = 3$

$$\frac{x^2 - 4}{x - 2} = \frac{(x-2)(x+2)}{x-2} = x + 2 \lim_{x \rightarrow 2} f(x) = 4$$

B. $f(2) = \begin{cases} \frac{x^2 - 4}{x - 2}, & x \neq 2 \\ 3, & x = 2 \end{cases}$

$$\frac{x^2 - 4}{x - 2} = \frac{(x-2)(x+2)}{x-2} = x + 2 \rightarrow \lim_{x \rightarrow 2} f(x) = \lim_{x \rightarrow 2} (x + 2) = 4$$

Fungsi tidak kontinu di $x = 2$

C. $f(2) = 2^2 - 1 = 3 \quad f(2) = x^2 - 1 = 3$

$$f(2) = 2^2 - 1 = 4 - 1 = 3$$

nilai fungsi di $x=2$ adalah 3

2. Kontinu di $x=2$ $f(x) = \begin{cases} x + a, & x < 2 \\ ax^2 - 1, & x \geq 2 \end{cases}$

$$\lim_{x \rightarrow 2^+} f(x) = 2 + a \rightarrow \lim_{x \rightarrow 2^+} f(x) = a(2)^2 - 1 = 4a - 1$$

$$2 + a = 4a - 1 \rightarrow 3 = 3a \rightarrow a = 1$$

Fungsi kontinu jika di $x=2$ jika $a=1$

3. $x^2 - 5x + 6 = (x-2)(x-3)$

$$6x - 12 = 6(x-2)$$

$$\frac{(x-2)(x-3)}{6(x-2)} = \frac{x-3}{6} \rightarrow \frac{2-3}{6} = \frac{-1}{6}$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 5x + 6}{6x - 12} = -\frac{1}{6}$$

4. $\lim_{x \rightarrow 3} f(x) = \frac{x^2 + x - 12}{x^2 + 3x - 18} \rightarrow$ bentuk tak te

$$\frac{9+3-12}{9+9-18} = \frac{0}{0} \rightarrow x^2 + x - 12 = (x + 4)(x - 3) \rightarrow x^2 + 3x - 18 = (x + 6)(x - 3) \rightarrow \frac{(x + 4)(x - 3)}{(x + 6)(x - 3)}$$

$$= \frac{x + 4}{x + 6} \rightarrow \frac{3 + 4}{3 + 6} = \frac{7}{9} \rightarrow$$

$$\rightarrow \lim_{x \rightarrow 3} \frac{x^2 + x - 12}{x^2 + 3x - 18} = \frac{7}{9}$$

Pertemuan 5

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata kuliah : Matematika

Pertemuan : 5 (lima)

Jawaban :

1. $(384)_8 = (260)_{10} = (100000100)_2$

Okta	Desimal	Biner
384_8	$(3x8^2) + (8x8^1) + (4x8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

2. $(872)_8 = (570)_{10} = (1000111010)_2$

Okta	Desimal	Biner
384_8	$(8x8^2) + (7x8^1) + (2x8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

3. $(1193)_8 = (651)_{10} = (1010001011)_2$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$ $512 + 64 + 72 + 3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ 1 $325 \div 2 = 162$ 1 $162 \div 2 = 81$ 0 $81 \div 2 = 40$ 1 $40 \div 2 = 20$ 0 $20 \div 2 = 10$ 0 $10 \div 2 = 5$ 0 $5 \div 2 = 2$ 1 $2 \div 2 = 1$ 0 $1 \div 2 = 0$ 1 $= 1010001011_2$

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ 1 $371 \div 2 = 185$ 1 $185 \div 2 = 92$ 1 $92 \div 2 = 46$ 0 $46 \div 2 = 23$ 0 $23 \div 2 = 11$ 1 $11 \div 2 = 5$ 1 $5 \div 2 = 2$ 1 $2 \div 2 = 1$ 0 $1 \div 2 = 0$ 1 $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$	$1152 \div 2 = 576$ 0 $576 \div 2 = 288$ 0

	$= 1152_{10}$	$288 \div 2 = 144$ $144 \div 2 = 72$ $72 \div 2 = 36$ $36 \div 2 = 18$ $18 \div 2 = 9$ $9 \div 2 = 4$ $4 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$	0 0 0 0 0 1 0 0 1
--	---------------	--	---

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011_2	$(1x2^4) + (1x2^3) + (0x2^2) + (1x2^1) + (1x2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833_{10}	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23_8	$(2x8^1) + (3x8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011_2	$(1x2^6) + (0x2^5) + (0x2^4) + (0x2^3) +$ $(1x2^2) + (1x2^1)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100_{10}	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$

	$12 \div 2 = 6$	0
	$6 \div 2 = 3$	0
	$3 \div 2 = 1$	1
	$1 \div 2 = 0$	1
	$= 1100100_2$	

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$(3 \times 8^1) + (1 \times 8^0)$ $8 + 1 = 9$ $= 9_{10}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$78 \div 8 = 9$ $9 \div 8 = 1$ $1 \div 8 = 0$ $= 116_8$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$ $8 + 4 + 0 + 1$ $= 13_{10}$

16. $(11010)_2 = (32)_8$

Biner	Okta
$(11010)_2$	011 010 3 2 $= 32_8$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
$(1001000)_2$	0100 1000 4 8 $= 48_{16}$

18. $1101_2 + 1011_2 = (11000)_2$

$$\begin{array}{r} +1101 \\ 1011 \\ \hline 11000 \end{array}$$

$$19. \ 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} -0101001 \\ \hline 1010010 \end{array}$$

$$20. \ 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} +01001110 \\ \hline 10101001 \end{array}$$

$$21. \ 111101 + 101001 = (010100)_2$$

$$\begin{array}{r} -111101 \\ \hline 010100 \end{array}$$

$$22. \ 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} +10110 \\ \hline 110011 \end{array}$$

$$\begin{array}{r} +01100 \\ \hline 111111 \end{array}$$

$$\begin{array}{r} +11011 \\ \hline 1011010 \end{array}$$

$$\begin{array}{r} +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 6

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

KONVERSI SISTEM BILANGAN

Nama : Varel Nico Ramadhan

Nim : 312510156

Kelas : TI.25.A2

Mata Kuliah : Matematika Kalkulus

Tugas 6

Soal dan Penyelesaian!

A. Latihan 1

$$\begin{aligned}1. \quad (97)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\&= (\dots\dots)_{16} \\2. \quad (29)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\3. \quad (112)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 \\&= (\dots\dots)_{16} \\4. \quad (77)_{10} &= (\dots\dots)_2 = (\dots\dots)_8 \\&= (\dots\dots)\end{aligned}$$

$$\begin{aligned}5. \quad (88)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16} \\6. \quad (111)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16} \\7. \quad (123)_{10} &= (\dots\dots)_2 \\8. \quad (127)_{10} &= (\dots\dots)_2 \\&= (\dots\dots)_8 = (\dots\dots)_{16}\end{aligned}$$

B. Latihan 2

$$\begin{aligned}1. \quad (1001011)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\2. \quad (1100111)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\3. \quad (1011100)_2 &= (\dots\dots)_8 \\&= (\dots\dots)_{10} \\&= (\dots\dots)_{16} \\4. \quad (01111110)_2 &= (\dots\dots)_8 = (\dots\dots)_{16} \\5. \quad (0111101111)_2 &= (\dots\dots)_8 = (\dots\dots)_{16}\end{aligned}$$

C. Latihan 3

$$\begin{aligned}1. \quad (153)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\2. \quad (246)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\3. \quad (112)_8 &= (\dots\dots)_2 \\&= (\dots\dots)_{16} \\4. \quad (57)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\5. \quad (77)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\6. \quad (123)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\7. \quad (155)_8 &= (\dots\dots)_2 = (\dots\dots)_{16} \\8. \quad (175)_8 &= (\dots\dots)_2 = (\dots\dots)_{16}\end{aligned}$$

D. Latihan 4

1. $(5F)_{16} = (\dots)_2$
 $= (\dots)_8$
2. $(0A)_{16} = (\dots)_2 = (\dots)_8$
3. $(F16)_{16} = (\dots)_2$
 $= (\dots)_8$
4. $(AD1)_{16} = (\dots)_2$
 $= (\dots)_8$
5. $(B29)_{16} = (\dots)_2$
 $= (\dots)_8$
6. $(B055)_{16} = (\dots)_2 = (\dots)_8$
7. $(ACDC)_{16} = (\dots)_2 = (\dots)_8$

E. Latihan 5

Konversikan !

1. $(759)_{10} = (\dots)_{BCD}$
2. $(4628)_{10} = (\dots)_{BCD}$
3. $(AD1)_{16} = (\dots)_{BCD}$
4. $(F16)_{16} = (\dots)_{BCD}$
5. $(75)_8 = (\dots)_{BCD}$
6. $(B055)_{16} = (\dots)_{BCD}$

F. Latihan 6

1. Konversikan bilangan oktal berikut ke bilangan **decimal**
 - a. $213_{(8)}$
 - b. $57_{(8)}$
2. Konversikan bilangan desimal berikut ini ke bilangan **oktal**
 - a. $351_{(10)}$
 - b. $629_{(10)}$
3. Konversikan bilangan oktal berikut ini ke bilangan **biner**
 - a. 27
 - b. 210
 - c. $555_{(8)}$
 - d. $6543_{(8)}$
4. Konversikan bilangan biner berikut ini ke bilangan **Oktal**
 - a. 010
 - b. 110011
 - c. 1011001
 - d. 1010111000

G. Latihan 7

1. Konversikan bilangan decimal berikut ke bilangan **heksadesimal v**
 - a. $19.889_{(10)}$
 - b. $2672_{(10)}$
2. Konversikan bilangan desimal berikut ini ke bilangan **octal v**
 - a. $1402_{(10)}$
 - b. $385_{(10)}$
3. Konversikan bilangan oktal berikut ini ke bilangan **biner v**
 - a. 315
 - b. 145
 - c. $54_{(8)}$
 - d. $265_{(8)}$
4. Konversikan bilangan biner berikut ini ke bilangan **heksadesimal**
 - a. 10100
 - b. 1001010
 - c. 10111

JAWAB

A. Latihan 1

1. $(97)_{10}$
 Biner = $(1100001)_2$
 Oktal = $1\ 100\ 001 \rightarrow 1, 4, 1$
 $= (141)_8$
- Heksa = $0110\ 0001 \rightarrow 6, 1$
 $= (61)_{16}$
2. $(29)_{10}$
 Biner = $(11101)_2$
 Oktal = $011\ 101 \rightarrow 3, 5$
 $= (35)_8$
 Heksa = $0001\ 1101 \rightarrow 1, D$
 $= (1D)_{16}$
3. $(112)_{10}$
 Biner = $(1110000)_2$
 Oktal = $1\ 110\ 000 \rightarrow 1, 6, 0$
 $= (160)_8$
- Heksa = $0111\ 0000 \rightarrow 7, 0$
 $= (70)_{16}$
4. $(77)_{10}$
 Biner = $(1001101)_2$
 Oktal = $001\ 001\ 101 \rightarrow 1, 1, 5$
 $= (115)_8$
- Heksa = $0100\ 1101 \rightarrow 4, D$
 $= (4D)_{16}$
5. $(88)_{10}$
 Biner = $(1011000)_2$
 Oktal = $001\ 011\ 000 \rightarrow 1, 3, 0$
 $= (130)_8$
- Heksa = $0101\ 1000 \rightarrow 5, 8$
 $= (58)_{16}$
6. $(111)_{10}$
 Biner = $(1101111)_2$
 Oktal = $001\ 101\ 111 \rightarrow 1, 5, 7$
 $= (157)_8$
- Heksa = $0110\ 1111 \rightarrow 6, F$
 $= (6F)_{16}$
7. $(123)_{10}$
 Biner = $(1111011)_2$
 Oktal = $111\ 101\ 1 \rightarrow 001\ 111\ 011 =$
 $1, 7, 3$
 $= (173)_8$
 Heksa = $0111\ 1011 \rightarrow 7, B$
 $= (7B)_{16}$
8. $(127)_{10}$
 Biner = $(1111111)_2$
 Oktal = $111\ 111\ 1 \rightarrow 001\ 111\ 111 =$
 $1, 7, 7$
 $= (177)_8$
- Heksa = $0111\ 1111 \rightarrow 7, F$
 $= (7F)_{16}$

B. Latihan 2

1. $(1001011)_2 = (113)_8 = (75)_{10} = (4B)_{16}$
Oktal = 1 001 011
→ 001 001 011
→ (001)=1, (001)=1, (011)=3
= $(113)_8$

Desimal

Hitung nilai biner:

$$= 1 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + \\ 1 \times 2^1 + 1 \times 2^0 \\ = 64 + 0 + 0 + 8 + 0 + 2 + 1 = (75)_{10}$$

Heksadesimal

$$0100\ 1011 \rightarrow (0100)=4, (1011)=B \\ = (4B)_{16}$$

2. $(1100111)_2 = (147)_8 = (103)_{10} = (67)_{16}$

Oktal = 1 100 111 →
tambahkan nol di depan : 001 100 111
→ (001)=1, (100)=4, (111)=7
= $(147)_8$

Desimal

$$= 1 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + \\ 1 \times 2^1 + 1 \times 2^0 \\ = 64 + 32 + 0 + 0 + 4 + 2 + 1$$

$$= (103)_{10}$$

Heksadesimal

$$= 0110\ 0111 \rightarrow (0110)=6, (0111)=7 \\ = (67)_{16}$$

3. $(1011100)_2 = (134)_8 = (92)_{10} = (5C)_{16}$

Oktal = 1 011 100 →
tambahkan nol di depan: 001 011 100
→ (001)=1, (011)=3, (100)=4
= $(134)_8$

Desimal

$$= 1 \times 2^6 + 0 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + \\ 0 \times 2^1 + 0 \times 2^0 \\ = 64 + 0 + 16 + 8 + 4 + 0 + 0$$

$$= (92)_{10}$$

Heksadesimal

$$= 0101\ 1100 \rightarrow (0101)=5, (1100)=C \\ = (5C)_{16}$$

4. $(01111110)_2 = (376)_8 = (7E)_{16}$

Oktal = 011 111 110
→ (011)=3, (111)=7, (110)=6
= $(376)_8$

Heksa = 0111 1110

$$\rightarrow (0111)=7, (1110)=E \\ = (7E)_{16}$$

5. $(0111101111)_2 = (757)_8 = (3DF)_{16}$

Oktal = 0 111 101 111
→ 000 111 101 111
→ (000)=0, (111)=7, (101)=5,
(111)=7
= $(757)_8$

Heksa = 0011 1101 1111

$$\rightarrow (0011)=3, (1101)=D, (1111)=F \\ = (3DF)_{16}$$

C. Latihan 3

1. $(153)_8 = (1101011)_2 = (6B)_{16}$

Langkah:

1 → 001

5 → 101

3 → 011

Gabung: $001101011 \rightarrow (1101011)_2$

Pisah 4 bit dari kanan → 0110 1011

0110 = 6, 1011 = B

8. $(175)_8 = (1111101)_2 = (7D)_{16}$

1 → 001

7 → 111

5 → 101

= 001111101 → $(1111101)_2$

= 0111 1101

= **0111 = 7, 1101 = D**

2. $(246)_8 = (10100110)_2 = (A6)_{16}$

2 → 010

4 → 100

6 → 110

= 010100110 → $(10100110)_2$

= **1010 = A, 0110 = 6**

3. $(112)_8 = (1001010)_2 = (4A)_{16}$

1 → 001

1 → 001

2 → 010

= 001001010 → $(1001010)_2$

= **0100 = 4, 1010 = A**

4. $(57)_8 = (101111)_2 = (2F)_{16}$

5 → 101

7 → 111

= $(101111)_2$

= 0010 1111

= **0010 = 2, 1111 = F**

5. $(77)_8 = (111111)_2 = (3F)_{16}$

7 → 111

7 → 111

= $(111111)_2$

= 0011 1111

= **0011 = 3, 1111 = F**

6. $(123)_8 = (1010011)_2 = (53)_{16}$

1 → 001

2 → 010

3 → 011

= 001010011 → $(1010011)_2$

= 0101 0011

= **0101 = 5, 0011 = 3**

7. $(155)_8 = (1101101)_2 = (6D)_{16}$

1 → 001

5 → 101

5 → 101

= 001101101 → $(1101101)_2$

= 0110 1101

= **0110 = 6, 1101 = D**

D. Latihan 4

1. $(5F)_{16} = (01011111)_2 = (137)_8$
5 → 0101
F → 1111
Biner = 0101 1111 → $(01011111)_2$
Oktal :
01 011 111 → **001=1, 011=3, 111=7**
= $(137)_8$
2. $(0A)_{16} = (00001010)_2 = (12)_8$
0 → 0000
A → 1010
Biner = 0000 1010 = $(00001010)_2$
Oktal :
000 001 010 → 000=0, 001=1, 010=2
= $(1012)_8$
3. $(F16)_{16} = (111100010110)_2 = (7426)_8$
F → 1111
1 → 0001
6 → 0110
Biner = 1111 0001 0110
→ $(111100010110)_2$
Oktal :
11 100 010 110 → 111=7, 100=4,
010=2, 110=6
= $(7426)_8$
4. $(AD1)_{16} = (101011010001)_2 = (5321)_8$
A → 1010
D → 1101
1 → 0001
Biner = 1010 1101 0001
→ $(101011010001)_2$
Oktal :
101 011 010 001 → 101=5, 011=3,
010=2, 001=1
= $(5321)_8$
5. $(B29)_{16}$
B → 1011
2 → 0010
9 → 1001
Biner = 1011 0010 1001
→ $(101100101001)_2$
Oktal :
101 100 101 001 → 101=5, 100=4,
101=5, 001=1
= $(5451)_8$
6. $(B055)_{16}$
B → 1011
0 → 000
5 → 0101
5 → 0101
Biner = 1011 0000 0101 0101
→ $(1011000001010101)_2$
Oktal :
001 011 000 000 101 010 101
→ 001=1, 011=3, 000=0, 000=0,
101=5, 010=2, 101=5
= $(130125)_8$
7. $(ACDC)_{16}$
A → 1010
C → 1100
D → 1101
C → 1100
Biner = 1010 1100 1101 1100
→ $(1010110011011100)_2$
Oktal :
001 010 110 011 011 100
= $(126334)_8$

E. Latihan 5

1. $(759)_{10} \rightarrow \text{BCD}$

$$7 \rightarrow 0111$$

$$5 \rightarrow 0101$$

$$9 \rightarrow 1001$$

$$(759)_{10} = (0111\ 0101\ 1001)_{\text{BCD}}$$

2. $(4628)_{10}$

$$4 \rightarrow 0100$$

$$6 \rightarrow 0110$$

$$2 \rightarrow 0010$$

$$8 \rightarrow 1000$$

$$(4628)_{10} =$$

$$(0100\ 0110\ 0010\ 1000)_{\text{BCD}}$$

3. $(AD1)_{16}$

Langkah 1 — ubah hex → desimal:

$$A = 10, D = 13, 1 = 1$$

$$(AD1)_{16} = 10 \cdot 16^2 + 13 \cdot 16^1 + 1 \cdot 16^0$$

Hitung :

$$16^2 = 256 \rightarrow 10 \cdot 256 = 2560$$

$$13 \cdot 16 = 208$$

$$1 \cdot 1 = 1$$

$$\text{Total desimal} = 2560 + 208 + 1 = \\ \mathbf{2769}$$

Langkah 2 — pisah digit desimal :

$$2769 \rightarrow 2, 7, 6, 9.$$

Konversi ke BCD:

$$2 \rightarrow 0010$$

$$7 \rightarrow 0111$$

$$6 \rightarrow 0110$$

$$9 \rightarrow 1001$$

$$(AD1)_{16} =$$

$$(0010\ 0111\ 0110\ 1001)_{\text{BCD}}$$

4. $(F16)_{16}$

hex → desimal:

$$F = 15, 1 = 1, 6 = 6$$

$$(F16)_{16} = 15 \cdot 16^2 + 1 \cdot 16^1 + 6 \cdot 16^0$$

$$16^2 = 256 \rightarrow 15 \cdot 256 = 3840$$

$$1 \cdot 16 = 16$$

$$6 \cdot 1 = 6$$

$$\text{Total desimal} = 3840 + 16 + 6 =$$

$$\mathbf{3862}$$

pisah digit desimal 3862 → 3, 8, 6, 2

$$3 \rightarrow 0011$$

$$8 \rightarrow 1000$$

$$6 \rightarrow 0110$$

$$2 \rightarrow 0010$$

$$(F16)_{16} =$$

$$(11\ 0\ 0110\ 0010)_{\text{BCD}}$$

5. $(75)_8$

octal → desimal:

$$75_8 = 7 \cdot 8^1 + 5 \cdot 8^0$$

$$= 7 \cdot 8 + 5 \cdot 1 = 56 + 5$$

$$= 61$$

digit desimal 61 → 6, 1.

Konversi ke BCD:

$$6 \rightarrow 0110$$

$$1 \rightarrow 0001$$

$$(75)_8 = (0110\ 0001)_{\text{BCD}}$$

6. $(B055)_{16}$

hex → desimal:

$$B = 11, 0, 5, 5$$

$$B055_{16} = 11 \cdot 16^3 + 0 \cdot 16^2 + 5 \cdot 16^1 + 5 \cdot 16^0$$

$$16^3 = 4096 \rightarrow 11 \cdot 4096 = 45056$$

$$0 \cdot 256 = 0$$

$$5 \cdot 16 = 80$$

$$5 \cdot 1 = 5$$

Desimal :

$$= 45056 + 0 + 80 + 5 = 45141$$

$$45141 \rightarrow 4, 5, 1, 4, 1$$

Konversi ke BCD:

$$4 \rightarrow 0100$$

$$5 \rightarrow 0101$$

$$1 \rightarrow 0001$$

$$1 \rightarrow 0100$$

$$1 \rightarrow 0001$$

$$(B055)_{16}$$

$$(0100\ 0101\ 0001\ 0100\ 0001)_{\text{BCD}}$$

F. Latihan 6

1. Konversikan bilangan oktal berikut ke bilangan **decimal**

a. $213_{(8)}$
 $= 2 \cdot 8^2 + 1 \cdot 8^1 + 3 \cdot 8^0$
 $= 2 \cdot 64 + 1 \cdot 8 + 3 \cdot 1$
 $= 128 + 8 + 3$
 $= 139_{(10)}$

Jadi, $213_8 = 139_{10}$

b. $57_{(8)}$
 $= 5 \cdot 8^1 + 7 \cdot 8^0$
 $= 5 \cdot 8 + 7$
 $= 40 + 7$
 $= 47_{(10)}$

Jadi, $57_8 = 47_{10}$

2. Konversikan bilangan desimal berikut ini ke bilangan **oktal**

a. $351_{(10)}$
 $351 \div 8 = 43$ sisa 7
 $43 \div 8 = 5$ sisa 3
 $5 \div 8 = 0$ sisa 5

Baca sisa dari terakhir → pertama:

$$\begin{array}{r} 5 \\ 3 \\ \hline \end{array} \qquad \qquad \qquad \begin{array}{r} 7 \\ \\ \end{array}$$

Jadi, $351_{(10)} = 537_{(8)}$

b. $629_{(10)}$
 $629 \div 8 = 78$ sisa 5
 $78 \div 8 = 9$ sisa 6
 $9 \div 8 = 1$ sisa 1
 $1 \div 8 = 0$ sisa 1

Baca sisa dari atas:

$$\begin{array}{r} 1 \\ 1 \\ \hline \end{array} \qquad \qquad \qquad \begin{array}{r} 6 \\ 5 \\ \hline \end{array}$$

Jadi, $629_{(10)} = 1165_{(8)}$

3. Konversikan bilangan oktal berikut ini ke bilangan **biner**

setiap digit oktal = 3 bit biner (karena $2^3 = 8$). Ganti tiap digit dengan 3-bit padanan.

a. 27_8
 $2 \rightarrow 010, 7 \rightarrow 111 \rightarrow 010\ 111$

$\rightarrow 10111$

Jadi, $27_8 = 010111_2 = 10111_2$

- b. 210_8

$$2 \rightarrow 010, 1 \rightarrow 001, 0 \rightarrow 000 \rightarrow$$

$$010\ 001\ 000 \rightarrow 10001000$$

Jadi, $210_8 = 010001000_2 = 10001000_2$

- c. 555_8

$$5 \rightarrow 101 \text{ tiap digit} \rightarrow 101\ 101\ 101$$

Jadi, $555_8 = 101101101_2$

- d. 6543_8

$$6 \rightarrow 110, 5 \rightarrow 101, 4 \rightarrow 100, 3 \rightarrow 011 \rightarrow$$

$$110\ 101\ 100\ 011$$

Jadi, $6543_8 = 110\ 101\ 100\ 011_2$

4. Konversikan bilangan biner berikut ini ke bilangan **Oktal**

- a. 010

$$010 \rightarrow \text{biner } 010 = \text{desimal } 2 \rightarrow$$

$$\text{oktal } 2$$

Jadi, $010_2 = 2_8$

- b. 110011

$$110\ 011 \rightarrow 110 = 6, 011 = 3 \rightarrow$$

$$\text{oktal } 63$$

Jadi, $110011_2 = 63_8$

- c. 1011001

Panjang 7 bit → tambahkan 2 nol di kiri 001 011 001
 $001=1, 011=3, 001=1 \rightarrow \text{oktal } 131$

5

Jadi, $1011001_2 = 131_8$

- d. 1010111000

Panjang 10 bit → tambahkan 2 nol di kiri → 00 101 011 100 0
 (susun kembali jadi 12 bit):
 $001\ 010\ 111\ 000$
 $001=1, 010=2, 111=7, 000=0 \rightarrow$
 $\text{oktal } 1270$

Jadi, $1010111000_2 = 1270_8$

G. Latihan 7

1. Konversikan bilangan decimal berikut ke bilangan **heksadesimal v**

a. $19.889_{(10)}$

Langkah:

- Gunakan pembagian berulang dengan 16.
- Setiap sisa dicatat dan dibaca dari bawah ke atas.

Pembagian	Hasil Bagi	Sisa	Keterangan
$19889 \div 16$	1243	1	$\rightarrow 1$
$1243 \div 16$	77	11	$11 = B$
$77 \div 16$	4	13	$13 = D$
$4 \div 16$	0	4	$4 = 4$

Urutan sisa dari bawah ke atas $\rightarrow 4 D B 1$

Jadi, $(19889)_{10} = (4DB1)_{16}$

b. $2672(10)$

Pembagian	Hasil Bagi	Sisa	Keterangan
$2672 \div 16$	167	0	$\rightarrow 0$
$167 \div 16$	10	7	$\rightarrow 7$
$10 \div 16$	0	10	$10 = A$

Baca sisa dari bawah ke atas $\rightarrow A 7 0$

Jadi, $(2672)_{10} = (A70)_{16}$

2. Konversikan bilangan desimal berikut ini ke bilangan **octal v**

a. $1402_{(10)}$

Pembagian	Hasil Bagi	Sisa
$1402 \div 8$	175	2
$175 \div 8$	21	7
$21 \div 8$	2	5
$2 \div 8$	0	2

Urutan sisa dari bawah $\rightarrow 2 5 7 2$

Jadi, $(1402)_{10} = (2572)_8$

b. $385_{(10)}$

Pembagian	Hasil Bagi	Sisa
$385 \div 8$	48	1
$48 \div 8$	6	0
$6 \div 8$	0	6

Baca dari bawah $\rightarrow 6\ 0\ 1$

Jadi, $(385)_{10} = (601)_8$

3. Konversikan bilangan oktal berikut ini ke bilangan **biner** v

Oktal	Konversi Tiap Digit
$3 \rightarrow 011$, $1 \rightarrow 001$, $5 \rightarrow 101$	011001101
$1 \rightarrow 001$, $4 \rightarrow 100$, $5 \rightarrow 101$	001100101
$5 \rightarrow 101$, $4 \rightarrow 100$	101100
$2 \rightarrow 010$, $6 \rightarrow 110$, $5 \rightarrow 101$	010110101

Jadi Hasilnya adalah :

a. $315_8 = 011001101_2$

b. $145_8 = 001100101_2$

c. $54_8 = 101100_2$

d. $265_8 = 010110101_2$

4. Konversikan bilangan biner berikut ini ke bilangan **heksadesimal**

a. 10100

Tambahkan nol di depan → 0001 0100

= (0001) = 1, (0100) = 4

Jadi, $(10100)_2 = (14)_{16}$

b. 1001010

Tambahkan nol di depan → 0100 1010

= (0100) = 4, (1010) = A

Jadi, $(1001010)_2 = (4A)_{16}$

c. 10111

Tambahkan nol di depan → 0001 0111

= (0001) = 1, (0111) = 7

Jadi, $(10111)_2 = (17)_{16}$

Pertemuan 7

Nama : Varrel Nico Ramadhan

NIM : 312510156

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Nama : Varel Nico Ramadhan
Nim : 312510156
Kelas : TI.25.A2
Mata Kuliah : Matematika Kalkulus
Pertemuan : 7

BARISAN DAN DERET ARITMETIKA

Ubahlah penjumlahan berikut dalam notasi sigma :

1. $1 + 5 + 9 + 13 + 17 + 21 + 25 + 29 + 33 + 37 + 41$

2. $3 + 8 + 15 + 24 + 35 + 48 + 63 + 80 + 99$

3. $\frac{1}{2} + \frac{1}{2.3} + \frac{1}{3.4} + \frac{1}{4.5} + \frac{1}{5.6} + \frac{1}{6.7} + \frac{1}{7.8} + \frac{1}{8.9} + \frac{1}{9.10}$

4. $2 + 5 + 8 + 11 + 14 + 17 + 20 + 23 + 26$

5. $-2 + 0 + 2 + 4 + 6$

6. $-\frac{2}{3} + \frac{3}{9} - \frac{4}{27} + \frac{5}{81} =$

7. Tentukan penjumlahan yang dinyatakan notasi sigma $\sum_{i=1}^4 (i^2 - 3i)$

8. Tentukan penjumlahan yang dinyatakan notasi sigma $\sum_{k=1}^3 \left(\frac{k^2}{(2k+3)} \right)$?

9. **Ubahlah agar batas bawah notasi sigma berikut menjadi 1**

a. $\sum_{i=5}^{15} (i^2 + 5i) =$

b. $\sum_{i=5}^{15} (i^2 - 20i + 99) =$

c. $\sum_{i=4}^{10} (2i - 7) =$

d. $\sum_{i=6}^{15} (9i^2 + 3i) =$

10. **Ubahlah agar batas bawah notasi sigma berikut menjadi 5:**

a. $\sum_{i=3}^9 (i^2 - 7) =$

b. $\sum_{i=2}^{11} (2i + 3) =$

c. $\sum_{i=4}^9 (i + 3) =$

11. Tentukan suku pertama, beda dan rumus suku ke-n serta suku ke-27, dari barisan aritmetika : 1, 5, 9, 13, 17, 21, 25, 29 ...

12. Tentukan suku pertama, beda dan rumus suku ke-n serta suku ke-19 dari barisan aritmetika : 50, 42, 34, 26, 18,

13. Diketahui barisan aritmetika, suku ke-27 adalah 46 dan suku ke-43 adalah 88. Tentukan rumus dari suku ke-n dari barisan Aritmetika itu ?

14. Diketahui jumlah suku ke-tiga dan suku ke-tujuh dari suatu barisan aritmetika adalah 34. Bila suku ke-10 adalah 42
15. Ubahlah : $\sum_{k=0}^5 (4k + 3)$ menjadi bentuk sigma dengan batas bawah 7 ?
16. Bila diketahui : $\sum_{k=5}^{25} (2 - pk) = 0$ maka nilai $\sum_{k=5}^{25} pk = \dots$
17. Hitunglah nilai dari : $\sum_{n=2}^{21} (5n - 6) =$
18. Suku keempat dan suku ketujuh barisan berturut-turut adalah 17 dan 29. Tentukan nilai suku ke-25 barisan tersebut?
19. Suatu deret, diketahui jumlah 5 suku yang pertama = 35 dan jumlah 4 suku yang pertama = 24, hitunglah besar suku yang ke 15 ?
20. Dari suatu barisan aritmetika, suku ketiga adalah 36, jumlah suku kelima dan ketujuh adalah 144. Tentukan besar jumlah 10 suku pertama deret tersebut ?
21. Jumlah n suku pertama dari sebuah deret adalah $n(3n - 1)$. Hitunglah berapa beda dari barisan itu 2 ?
22. Keluarga bapak Suherman mempunyai 6 anak yang usianya pada saat ini membentuk barisan aritmetika. Jika usia anak ke-3 adalah 7 tahun dan usia anak ke-5 adalah 12 tahun, maka hitunglah jumlah usia enam anak tersebut ?
23. Tulislah bentuk dari : $-\frac{1}{z} + \frac{2}{z} - \frac{3}{z} + \frac{4}{z}$ dalam notasi sigma ?
24. Ubahlah batas bawah Notasi sigma berikut menjadi 1 dari notasi sigma : $\sum_{k=0}^4 (3 - 2k)$
25. Diketahui jumlah n suku pertama dari suatu deret aritmetika adalah $S_n = 4n^2 - 32n$. Tentukan suku ke- n dari barisan itu ?
26. Diketahui barisan aritmetika : log2, log4, log8,.... Carilah jumlah 19 suku pertamanya ?
27. Tentukan jumlah 20 suku pertama dari deret Aritmetika : 50 + 47 + 44 + 41 +
28. Diketahui deret Aritmetika dengan suku ke-5 sama dengan tiga kali suku ke-3. Bila $U_9 + U_{10} + U_{11} + U_{12} = 68$, tentukan jumlah 12 suku pertamanya ?

PENYELESAIAN

1. $1 + 5 + 9 + 13 + 17 + 21 + 25 + 29 + 33 + 37 + 41$

$a_1 = 1$, beda $d = 4$.

Suku umum: $a_n = a_1 + (n - 1)d = 1 + 4(n - 1) = 4n - 3$.

banyak suku: $4n - 3 = 41 \Rightarrow 4n = 44 \Rightarrow n = 11$.

Notasi sigma: $\sum_{i=1}^{11} (4i - 3)$.

Jumlah: $S_{11} = \frac{1}{2}(1 + 41) = \frac{11}{2} \cdot 42 = 11 \cdot 21 = 231$.

Jawaban akhir: Notasi sigma $\sum_{i=1}^{11} (4i - 3)$. Jumlah = **231**.

2. $3+8+15+24+35+48+63+80+99$

Pola bentuk $k^2 + 2k$.

- $k = 1 \Rightarrow 1 + 2 = 3$
- $k = 2 \Rightarrow 4 + 4 = 8$
- ... sampai $k = 9 \Rightarrow 81 + 18 = 99$. Jadi suku ke- k : $a_k = k^2 + 2k$, $k = 1, \dots, 9$.

Notasi sigma: $\sum_{k=1}^9 (k^2 + 2k)$

Jika diminta jumlah:

- $\sum_{k=1}^9 k^2 = \frac{9 \cdot 10 \cdot 19}{6} = 285$.
- $\sum_{k=1}^9 2k = 2 \cdot \frac{9 \cdot 10}{2} = 90$.
- Total = $285 + 90 = 375$.

Jawaban akhir: Notasi sigma $\sum_{k=1}^9 (k^2 + 2k)$. Jumlah = **375**.

3. $\frac{1}{2} + \frac{1}{2 \cdot 3} + \frac{1}{3 \cdot 4} + \frac{1}{4 \cdot 5} + \dots + \frac{1}{9 \cdot 10}$

Suku umum: $\frac{1}{k(k+1)}$ untuk $k = 1$ sampai 9. $\frac{1}{k(k+1)} = \frac{1}{k} - \frac{1}{k+1}$.

Jadi $\sum_{k=1}^9 \frac{1}{k(k+1)} = \sum_{k=1}^9 \left(\frac{1}{k} - \frac{1}{k+1} \right)$.

Deret telescoping \Rightarrow hanya tersisa $1 - \frac{1}{10} = \frac{9}{10}$

Jawaban akhir: Notasi sigma $\sum_{k=1}^9 \frac{1}{k(k+1)}$. Jumlah = $\frac{9}{10}$

4. Barisan aritmetika: $a_1 = 2$, $d=3$

Suku umum: $a_n = 2 + (n - 1)3 = 3n - 1$.

Banyak suku: $(26 - 2)/3 + 1 = 9$.

Notasi sigma: $\sum_{i=1}^9 (3i - 1)$.

Jumlah: $S_9 = \frac{9}{2}(2 + 26) = \frac{9}{2} \cdot 28 = 9 \cdot 14 = 126$.

Jawaban akhir: Notasi sigma $\sum_{i=1}^9 (3i - 1)$. Jumlah = **126**.

5. $-2+0+2+4+6$

Barisan aritmetika: $a_1 = -2$, $d=2$

Suku umum: $a_n = -2 + (n-1)2 = 2n - 4$, $n = 1..5$.

Notasi sigma: $\sum_{n=1}^5 (2n - 4)$.

Jumlah: $S_5 = \frac{5}{2}(-2 + 6) = \frac{5}{2} \cdot 4 = 10$.

Jawaban akhir: Notasi sigma $\sum_{n=1}^5 (2n - 4)$. Jumlah = **10**.

6. $\frac{-2}{3} + \frac{3}{9} - \frac{4}{27} + \frac{5}{81}$

Perhatikan pola: penyebut 3^k , pembilang $k+1$ dan tanda berganti.

Suku ke- k (untuk $k = 1..4$) dapat dituliskan: $a_k = (-1)^k \frac{k+1}{3^k}$.

$k = 1 \Rightarrow -2/3$, $k = 2 \Rightarrow +3/9, \dots$

Notasi sigma: $\sum_{k=1}^4 (-1)^k \frac{k+1}{3^k}$

Disamakan penyebutnya $\frac{2}{3} = -\frac{54}{81}$, $\frac{3}{9} = \frac{27}{81}$, $-\frac{4}{27} = -\frac{12}{81}$, $\frac{5}{81} = \frac{5}{81}$

Total = $(\frac{-54+27-12+5}{81}) = -\frac{34}{81}$

Jawaban akhir: Notasi sigma $\sum_{k=1}^4 (-1)^k \frac{k+1}{3^k}$. Jumlah = **$-\frac{34}{81}$**

7. $\sum_{i=1}^4 (i^2 - 3i)$

Pisah: $\sum i^2 - 3\sum i$.

$= \sum_{i=1}^4 i^2 = 1 + 4 + 9 + 16 = 30$.

$= \sum_{i=1}^4 i = 1 + 2 + 3 + 4 = 10$.

Hasil: $30 - 3 \cdot 10 = 30 - 30 = 0$.

Jawaban akhir: **0**.

8. $\sum_{k=1}^3 \frac{k^2}{2k+3}$

Hitung per suku:

➤ $k = 1: \frac{1}{2+3} = \frac{1}{5}$.

➤ $k = 2: \frac{4}{4+3} = \frac{4}{7}$.

➤ $k = 3: \frac{9}{6+3} = \frac{9}{9} = 1$.

Jumlah: $1 + \frac{1}{5} + \frac{4}{7} = \frac{35+7+20}{35} = \frac{62}{35}$.

Jawaban akhir: **$\frac{62}{35}$** .

9. a) $\sum_{i=5}^{15} (i^2 + 5i)$

Ganti $i = k + 4$ sehingga $k = 1 \dots 11$.

$$\text{Hasil: } \sum_{k=1}^{11} (k^2 + 13k + 36). \text{ Jika perlu jumlah:}$$

$$\begin{aligned}\sum_{k=1}^{11} k^2 &= \frac{11 \cdot 12 \cdot 23}{6} = 506. \\ \sum_{k=1}^{11} k &= 66.\end{aligned}$$

$$\text{Total} = 506 + 13 \cdot 66 + 36 \cdot 11 = 506 + 858 + 396 = \mathbf{1760}.$$

b) $\sum_{i=5}^{15} (i^2 - 20i + 99)$

Ganti $i = k + 4$:

$$(k+4)^2 - 20(k+4) + 99 = k^2 + 8k + 16 - 20k - 80 + 99 = k^2 - 12k + 35.$$

$$\text{Hasil: } \sum_{k=1}^{11} (k^2 - 12k + 35).$$

$$\text{Jumlah: } \sum k^2 = 506, \sum k = 66.$$

$$\text{Total} = 506 - 12 \cdot 66 + 35 \cdot 11 = 506 - 792 + 385 = \mathbf{99}.$$

c) $\sum_{i=4}^{10} (2i - 7)$

$$\text{Ganti } i = k + 3 (k=1..7): 2(k+3) - 7 = 2k + 6 - 7 = 2k - 1.$$

$$\text{Hasil: } \sum_{k=1}^7 (2k - 1).$$

$$\text{Jumlah: } \sum_{k=1}^7 2k = 2 \cdot \frac{7 \cdot 8}{2} = 56. \quad \sum 1 = 7.$$

$$\text{Jadi total} = 56 - 7 = \mathbf{49}.$$

d) $\sum_{i=6}^{15} (9i^2 + 3i)$

$$\text{Ganti } i = k + 5 (k=1..10) : 9(k+5)^2 + 3(k+5) = 9(k^2 + 10k + 25) + 3k + 15 = 9k^2 + 90k + 225 + 3k + 15 = 9k^2 + 93k + 240.$$

$$\text{Hasil: } \sum_{k=1}^{10} (9k^2 + 93k + 240).$$

$$\text{Jumlah: } \sum_{k=1}^{10} k^2 = 385, \sum_{k=1}^{10} k = 55.$$

$$\text{Total} = 9 \cdot 385 + 93 \cdot 55 + 240 \cdot 10 = 3465 + 5115 + 2400 = \mathbf{10980}.$$

10. a) $\sum_{i=3}^9 (i^2 - 7)$

$$\text{Tulis: } (3^2 - 7) + (4^2 - 7) + \sum_{i=5}^9 (i^2 - 7).$$

$$\text{Hitung bagian awal: } (9 - 7) + (16 - 7) = 2 + 9 = 11.$$

Jika diminta jumlah total: $\sum_{i=5}^9 i^2 = 25 + 36 + 49 + 64 + 81 = 255.$

$$\sum_{i=5}^9 (i^2 - 7) = 255 - 5 \cdot 7 = 255 - 35 = 220.$$

Total = $11 + 220 = 231.$

b) $\sum_{i=2}^{11} (2i + 3)$

Tulis: $(2 \cdot 2 + 3) + (2 \cdot 3 + 3) + (2 \cdot 4 + 3) + \dots + \sum_{i=5}^{11} (2i + 3).$

Nilai awal: $7 + 9 + 11 = 27.$

Jika diminta jumlah total:

$$\sum_{i=5}^{11} 2i = 2 \cdot \sum_{i=5}^{11} i = 2 \cdot (\sum_1^{11} - \sum_1^4) = 2 \cdot (66 - 10) = 2 \cdot 56 = 112.$$

$$= \sum_{i=5}^{11} 3 = 3 \cdot 7 = 21.$$

Sisa = $112 + 21 = 133.$

Total = $27 + 133 = 160.$

c) $\sum_{i=4}^9 (i + 3)$

Tulis: $(4 + 3) + \sum_{i=5}^9 (i + 3) = 7 + \sum_{i=5}^9 i + 5 \cdot 3.$

$$= \sum_{i=5}^9 i = \sum_1^9 - \sum_1^4 = 45 - 10 = 35.$$

Sisa = $35 + 15 = 50.$ Total = **$7 + 50 = 57.$**

11. Diketahui barisan: 1, 5, 9, 13, 17, 21, 25, 29, ...

Suku pertama (a_1): $a_1 = 1$

Beda (d): $d = 5 - 1 = 4$

Jawaban: $a_1 = 1, d = 4$

Rumus suku ke-n:

$$\begin{aligned}
 U_n &= a_1 + (n - 1)d \\
 U_n &= 1 + (n - 1) \times 4 \\
 U_n &= 4n - 3 \\
 &= U_n = 4n - 3
 \end{aligned}$$

Suku ke-27: $U_{27} = 4(27) - 3 = 108 - 3 = 105$

$= U_{27} = 105$

12. Diketahui barisan: 50, 42, 34, 26, 18, ...

Suku pertama (a_1): $a_1 = 50$

Beda (d): $d = 42 - 50 = -8$

Rumus suku ke-n:

$$\begin{aligned}
 U_n &= a_1 + (n - 1)d \\
 U_n &= 50 + (n - 1)(-8) \\
 U_n &= 50 - 8n + 8 = 58 - 8n
 \end{aligned}$$

Suku ke-19 : $U_{19} = 58 - 8(19) = 58 - 152 = -94$

13. Diketahui: $U_{27} = 46$, $U_{43} = 88$

Rumus umum: $U_n = a + (n - 1)d$
Substitusi ke dua data: $\begin{aligned} U_{27} &= a + 26d = 46 \\ U_{43} &= a + 42d = 88 \end{aligned}$

Kurangkan (2) - (1): $(a + 42d) - (a + 26d) = 88 - 46$
 $42 - 21 = 27$
 $16d = 27 \Rightarrow d = \frac{27}{16} = 1.6875$

Substitusi ke (1): $\begin{aligned} a + 26(\frac{27}{16}) &= 46 \\ 546 &= 46 \\ a + \frac{27}{8} &= 46 \\ a &= 46 - 3.375 = 2.625 \end{aligned}$

Rumus suku ke-n: $\begin{aligned} U_n &= a + (n - 1)d = 2.625 + (n - 1)(\frac{27}{8}) \\ U_n &= 2.625 + \frac{27n - 27}{8} = \frac{27n - 189 - 178}{8} ? \\ U_n &= 2.625 + 3.375(n - 1) \\ U_n &= \frac{89}{4} + \frac{27}{8}(n - 1) \end{aligned}$

Jawaban:

- $a = -22.25$
- $d = \frac{21}{8} = 2.625$
- Rumus suku ke-n: $U_n = -22.25 + 2.625(n - 1)$

14. Diketahui jumlah suku ke-3 dan ke-7 = 34, dan suku ke-10 = 42

$$\begin{aligned} U_3 + U_7 &= 34 \\ (a + 2d) + (a + 6d) &= 34 \Rightarrow 2a + 8d = 34 \Rightarrow a + 4d = 17(1) \\ U_{10} &= a + 9d = 42(2) \end{aligned}$$

$$\text{Dari (2)-(1): } 5d = 25 \Rightarrow d = 5.$$

$$\text{Substitusi ke (1): } a + 20 = 17 \Rightarrow a = -3.$$

Hasil: $a=-3, d=5$ $U_n = -3 + (n-1)5 = 5n-8.$

15. $\sum_{k=0}^5 (4k + 3)$ ubah batas bawah jadi 7.

$$\begin{aligned} \text{Gunakan } m = k + 7 \Rightarrow k = m - 7 \rightarrow 4k + 3 &= 4(m - 7) + 3 = 4m - 25 \\ \text{Saat } k = 0 \Rightarrow m = 7, k=5 \Rightarrow m=12. \end{aligned}$$

Hasil: $\sum_{m=7}^{12} (4m - 25)$

16. $\sum_{k=5}^{25} (2 - pk) = 0$

$$\begin{aligned} \Sigma 2 - p \sum k &= 0 \Rightarrow 2(21) - p(315) = 0 \Rightarrow 42 - 315p = 0 \Rightarrow p = \frac{2}{15} \\ \text{Hasil } \sum_{k=5}^{25} pk &= p \sum k = \frac{2}{15} \times 315 = 42. \end{aligned}$$

17. $\sum_{i=1}^{21} (25n - 6)$

$$\text{Bentuk konstanta } 21(25n - 6) = 525n - 126.$$

Jawaban: $525n - 126.$

18. Suku ke-4 = 17, suku ke-9 = 29

$$U_4 = a + 3d = 17,$$

$$U_9 = a + 8d = 29 \Rightarrow 5d = 12 \Rightarrow d = 2.4$$

$$\text{Substitusi } a + 7.2 = 17 \Rightarrow a = 9.8.$$

$$U_{25} = a + 24d = 9.8 + 57.6 = 67.4$$

Hasil: $a = 9.8, d = 2.4, U_{25} = 67.4$

19. Jumlah 5 suku pertama = 35, jumlah 4 suku pertama = 24.

$$S_5 - S_4 = U_5 = 35 - 24 = 11.$$

Rumus $S_n = \frac{n}{2}(2a + (n-1)d)$:

$$S_5 = \frac{5}{2}(2a + 4d) = 35 \Rightarrow 2a + 4d = 14 \\ S_4 = \frac{4}{2}(2a + 3d) = 24 \Rightarrow 2a + 3d = 12$$

Selisih $\rightarrow d = 2, a = 3$.

Hasil: $a=3, d=2, U_{15} = a + 14d = 3 + 28 = 31$.

20. Barisan aritmetika, $U_3 = 36$, jumlah $U_5 + U_7 = 144$.

$$U_3 = a + 2d = 36, U_5 + U_7 = (a + 4d) + (a + 6d) = 2a + 10d = 144.$$

Dari (1): $a = 36 - 2d$, substitusi \rightarrow

$$2(36 - 2d) + 10d = 144 \Rightarrow 72 - 4d + 10d = 144 \Rightarrow 6d = 72 \Rightarrow d = 12, a = 12.$$

$$U_8 = a + 7d = 12 + 84 = 96.$$

Hasil: $a = 12, d = 12, U_8 = 96$.

21. Jumlah n suku: $S_n = \frac{n}{2}(3n - 1)$.

Suku pertama $U_1 = 1$.

$$U_n = S_n - S_{n-1} = \frac{n}{2}(3n - 1) - \frac{n-1}{2}[3(n-1) - 1] = \frac{1}{2}[3n^2 - n - (3n^2 - 7n + 4)] \\ = \frac{1}{2}(6n - 4) = 3n - 2.$$

$U_1 = 1$ bila $n = 1$.

Hasil: $U_n = 3n - 2$.

22. Anak ke-1 umur 4 tahun, beda 2 tahun, total 6 anak.

$$a = 4, d = 2, n = 6, S_6 = 26(2 \cdot 4 + 5 \cdot 2) = 3(8 + 10) = 54. \\ \text{Total umur} = 54 \text{ tahun.}$$

23. Barisan: $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}, \dots$

Suku ke-n: $U_n = \frac{1}{n+1}$

Hasil: $U_n = \frac{1}{n+1}$

24. Ubah batas bawah menjadi 1: $\sum_{k=0}^4 (3 - 2k)$

Gunakan $i = k + 1 \Rightarrow k = i - 1$, batas baru $1 \rightarrow 5$:

$$3 - 2(i - 1) = 3 - 2i + 2 = 5 - 2i$$

Hasil: $\sum_{i=1}^5 (5 - 2i)$

25. Diketahui $S_n = 4n^2 - 3n$.

Cari $U_n = S_n - S_{n-1}$

$$U_n = (4n^2 - 3n) - [4(n-1)^2 - 3(n-1)] = 4n^2 - 3n - (4n^2 - 8n + 4 - 3n + 3) \\ = 4n^2 - 3n - 4n^2 + 8n - 4 + 3n - 3 = 8n - 7.$$

Hasil: $U_n = 8n - 7$.

26. Barisan logaritma: \log_2, \log_4, \log_8

$$\log 4 = 2 \log 2, \log 8 = 3 \log 2 \\ \rightarrow a = \log 2, \log = 2$$

$$S_{19} = \frac{19}{2} [2a + (19-1)d] = \frac{19}{2} (20\log 2) = 190\log 2 \approx 57.19$$

Jawaban: $S_{19} = 190\log 2 \approx 57.19$

27. 20 suku pertama dari 50, 47, 44, 41,...

$$a = 50, d = -3.$$

$$S_{20} = \frac{20}{2} [2(50) + (19)(-3)] = 10(100 - 57) = 430.$$

Hasil: $S_{20} = 430$.

28. Diketahui $U_5 = 3x, U_9 = 7, U_{11} = 9x, U_{12} = 10x, U_8 + U_{10} + U_{12} = 68$

Gunakan $U_n = a + (n-1)d$.

$$U_5 = a + 4d = 3x, U_9 = a + 8d = 7x, U_{11} = a + 10d = 9x.$$

Selisih $4d = 4x \Rightarrow d = x, a = -x$.

$$U_8 = -x + 7x = 6x, U_{10} = -x + 9x = 8x, U_{12} = -x + 11x = 10x.$$

$$\text{Jumlah } 6x + 8x + 10x = 24x = 68 \Rightarrow x = \frac{17}{6}.$$

$$\text{Jumlah 12 suku pertama: } S_{12} = \frac{12}{2} [2(-x) + (11)(x)] = 6(-2x + 11x) = 6(9x) = 54x = 54 \times \frac{17}{6} = 153. \text{ Hasil: } S_{12} = 153.$$

Pertemuan 6

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : hserth

NIM : 4261

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		$72 \div 2 = 36$	0
		$36 \div 2 = 18$	0
		$18 \div 2 = 9$	0
		$9 \div 2 = 4$	1
		$4 \div 2 = 2$	0
		$2 \div 2 = 1$	0
		$1 \div 2 = 0$	1
		$= 1001000000_2$	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011_2	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833_{10}	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23_8	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011_2	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100_{10}	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	$\begin{array}{r} 1 \\ 1 \end{array}$
--	--	---------------------------------------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 2

Nama : hserth

NIM : 4261

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan
NIM : 390870
Kelas : TI.25.A.2
Mata Kuliah : Matematika
Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$3 \div 2 = 1$ $1 \div 2 = 0$ $= 1100100_2$	1 1
--	---	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$(1 \times 8^1) + (1 \times 8^0)$ $8 + 1 = 9$ $= 9_{10}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$78 \div 8 = 9$ $9 \div 8 = 1$ $1 \div 8 = 0$ $= 116_8$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$ $8 + 4 + 0 + 1$ $= 13_{10}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$011 \quad 010$ $3 \quad 2$ $= 32_8$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$0100 \quad 1000$ $4 \quad 8$ $= 48_{16}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r} 1101 \\ + 1011 \\ \hline 11000 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 2

Nama : Raihan

NIM : 390870

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		$72 \div 2 = 36$	0
		$36 \div 2 = 18$	0
		$18 \div 2 = 9$	0
		$9 \div 2 = 4$	1
		$4 \div 2 = 2$	0
		$2 \div 2 = 1$	0
		$1 \div 2 = 0$	1
		$= 1001000000_2$	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011_2	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833_{10}	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23_8	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011_2	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100_{10}	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	$\begin{array}{r} 1 \\ 1 \end{array}$
--	--	---------------------------------------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 7

Nama : Raihan Dika

NIM : 10395871390

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 2

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ 16+8+0+2+1 =27 ₈

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ 104÷8=13 13÷8=1 1÷8=0 =1501 ₈

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ 16+3=19 =19 ₁₀

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ 64+0+0+0+2+1=67 =67 ₁₀

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ 50÷2=25 25÷2=12 12÷2=6 6÷2=3

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 3

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Creating PDFs in JavaScript is awesome!

Pertemuan 4

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan
NIM : 390870
Kelas : TI.25.A.2
Mata Kuliah : Matematika
Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ 16+8+0+2+1 =27 ₈

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ 104÷8=13 13÷8=1 1÷8=0 =1501 ₈

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ 16+3=19 =19 ₁₀

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ 64+0+0+0+2+1=67 =67 ₁₀

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ 50÷2=25 25÷2=12 12÷2=6 6÷2=3

	$3 \div 2 = 1$ $1 \div 2 = 0$ $= 1100100_2$	1 1
--	---	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$(1 \times 8^1) + (1 \times 8^0)$ $8 + 1 = 9$ $= 9_{10}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$78 \div 8 = 9$ $9 \div 8 = 1$ $1 \div 8 = 0$ $= 116_8$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$(1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$ $8 + 4 + 0 + 1$ $= 13_{10}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$011 \quad 010$ $3 \quad 2$ $= 32_8$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$0100 \quad 1000$ $4 \quad 8$ $= 48_{16}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r} 1101 \\ + 1011 \\ \hline 11000 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 2

Nama : Raihan

NIM : 390870

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ 16+8+0+2+1 =27 ₈

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ 104÷8=13 13÷8=1 1÷8=0 =1501 ₈

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ 16+3=19 =19 ₁₀

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ 64+0+0+0+2+1=67 =67 ₁₀

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ 50÷2=25 25÷2=12 12÷2=6 6÷2=3

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 7

Nama : Raihan Arrasyid Monadika

NIM : 312510206

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.



TEKNIK (FT)
PRODI TEKNIK INFORMATIKA
UNIVERSITAS PELITA BANGSA

DAFTAR HADIR PERKULIAHAN GANJIL 2025/2026

MATA KULIAH : PANCASILA			SKS : 2	SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH															
NO	NIM	NAMA MAHASISWA/I		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	312510155	NAZWA SALSABILA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
2	312510156	VAREL NICO RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
3	312510157	M.RIDWAN AL MAHRI		M	M	-	M	M	M	M	-	-	-	-	-	-	-	-	-
4	312510159	AZIZAH RACHMATANIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
5	312510160	ADHYTIA HAMDANI PUTRA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
6	312510161	FADHIL SYAFIQ ABDULLAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
7	312510162	ALBERT MAULANA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
8	312510163	TEDI MULYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
9	312510164	MILAN NUGROHO		M	M	M	-	M	M	M	-	-	-	-	-	-	-	-	-
10	312510170	FIA NAEFA SAHWA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
11	312510178	BILAL SALYA RAMADHAN		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
12	312510181	MUHAMAD PRASETYO ANDRI WIBOWO		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
13	312510183	SHOFI AULIANDA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
14	312510185	FADHIL RIDWAN AZZRIL RASSYADI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
15	312510189	DAMAR SATRYO PAMBUDI		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
16	312510193	NAIFAH ALYA KAMILAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
17	312510194	FEBRYVIA DEYA NUR HAVIDTAR MURTI AQSA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
18	312510197	CHAYA AULIA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
19	312510198	MUHAMMAD ALFI ZAINUL HAQ		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
20	312510203	DIMAS NOOR FATAH		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
21	312510206	RAIHAN ARRASYID MONADIKA		M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-



MATA KULIAH : PANCASILA			SKS : 2		SEMESTER / KELAS / RUANG : 1 / TI.25.A.2 / B403 FT-FH													
NO	NIM	NAMA MAHASISWA/I	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22	312510210	ANANDA EKA DELIMA PUTRI	-	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
23	312510213	DENNIS MAHESHA	M	-	M	M	-	-	-	-	-	-	-	-	-	-	-	-
24	312510214	ARYA DIMAS SAPUTRA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
25	312510216	FEBRYAN GOUW TAMA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
26	312510221	TIYO ENDRIYANA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
27	312510222	AHMAD RIDHWAN ILHAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
28	312510223	TASYAH RAMADANI	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
29	312510224	MUHAMMAD WALDI BADRUTTAMAM	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
30	312510225	NAJLA WENING KHAIRUNNISA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
31	312510227	FIJAR ARDHINUGRAHA	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
32	312510231	MUHAMMAD ARRAFI UTOMO	-	-	M	-	-	M	M	-	-	-	-	-	-	-	-	-
33	312510232	NAZIHA RAIQI Aribino	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
34	312510241	CHEERIO ABELYZELLO MARTINES	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
35	312510246	FACHMI AMRULLAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
36	312510250	MUKTI ADRIANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
37	312510255	NABILA FAWWAZ NURLIAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
38	312510304	AZRIEL DAVA REIHANSYAH	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-
39	312510465	AGUS SALEH RUMBOUW	M	M	M	M	M	-	M	-	-	-	-	-	-	-	-	-
40	312510466	DANIEL MOHHAMED	M	M	M	M	-	M	M	-	-	-	-	-	-	-	-	-
41	Dosen Utama	SUGENG BUDI RAHARDJO, S.T., M.M.	M	M	M	M	M	M	M	-	-	-	-	-	-	-	-	-

Waktu Dicetak : Minggu, 02 November 2025 08:39:04



Bekasi, 02 November 2025
Ka. Prodi



Dr. Ir. Ananto Tri Sasongko, M.Sc.

NIDN : 0410056601

Pertemuan 2

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$ \begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned} $	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$ \begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned} $

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$ \begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 \end{aligned} $

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$ \begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned} $

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$ \begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 \end{array} $

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$ \begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} \end{array} $

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 3

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Creating PDFs in JavaScript is awesome!

Pertemuan 4

Nama : Raihan

NIM : 1235235

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

Pertemuan 1

Nama : Raihan
NIM : 390870
Kelas : TI.25.A.2
Mata Kuliah : Matematika
Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		72÷2=36	0
		36÷2=18	0
		18÷2=9	0
		9÷2=4	1
		4÷2=2	0
		2÷2=1	0
		1÷2=0	1
		=10010000000 ₂	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011 ₂	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833 ₁₀	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23 ₈	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011 ₂	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100 ₁₀	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$\begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned}$	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$\begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned}$

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$\begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 & \end{aligned}$

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$\begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned}$

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$\begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 & \end{array}$

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$\begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} & \end{array}$

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$

Pertemuan 2

Nama : Raihan

NIM : 390870

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Dosen Pengampu : Ir. U. Darmanto Soer, M.Kom.

TUGAS-5

Nama : Tasyah Ramadani

NIM 312510223

Kelas : TI.25.A.2

Mata Kuliah : Matematika

Pertemuan 5

LATIHAN KONVERSI SISTEM BILANGAN

SOAL & JAWABAN

$$1. \ (384)_8 = (260)_{10} = (100000100)_2$$

Okta	Desimal	Biner
384_8	$(3 \times 8^2) + (8 \times 8^1) + (4 \times 8^0)$ $192 + 64 + 4 = 260$ $= 260_{10}$	$260 \div 2 = 130 \quad 0$ $130 \div 2 = 65 \quad 0$ $65 \div 2 = 32 \quad 1$ $32 \div 2 = 16 \quad 0$ $16 \div 2 = 8 \quad 0$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 100000100_2$

$$2. \ (872)_8 = (570)_{10} = (1000111010)_2$$

Okta	Desimal	Biner
872_8	$(8 \times 8^2) + (7 \times 8^1) + (2 \times 8^0)$ $512 + 56 + 2 = 570$ $= 570_{10}$	$570 \div 2 = 285 \quad 0$ $285 \div 2 = 142 \quad 1$ $142 \div 2 = 71 \quad 0$ $71 \div 2 = 35 \quad 1$ $35 \div 2 = 17 \quad 1$ $17 \div 2 = 8 \quad 1$ $8 \div 2 = 4 \quad 0$ $4 \div 2 = 2 \quad 0$ $2 \div 2 = 1 \quad 0$ $1 \div 2 = 0 \quad 1$ $= 1000111010_2$

$$3. \ (1193)_8 = (651)_{10} = (1010001011)_2$$

Okta	Desimal	Biner
1193_8	$(1 \times 8^3) + (1 \times 8^2) + (9 \times 8^1) + (3 \times 8^0)$	$570 \div 2 = 285 \quad 0$

	$512+64+72+3 = 651$ $= 651_{10}$	$651 \div 2 = 325$ $325 \div 2 = 162$ $162 \div 2 = 81$ $81 \div 2 = 40$ $40 \div 2 = 20$ $20 \div 2 = 10$ $10 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1010001011_2$	1 1 0 1 0 0 0 1 0 1
--	-------------------------------------	--	--

4. $(1347)_8 = (743)_{10} = (1011100111)_2$

Okta	Desimal	Biner
1347_8	$(1 \times 8^3) + (3 \times 8^2) + (4 \times 8^1) + (7 \times 8^0)$ $512 + 192 + 32 + 7 = 743$ $= 743_{10}$	$743 \div 2 = 371$ $371 \div 2 = 185$ $185 \div 2 = 92$ $92 \div 2 = 46$ $46 \div 2 = 23$ $23 \div 2 = 11$ $11 \div 2 = 5$ $5 \div 2 = 2$ $2 \div 2 = 1$ $1 \div 2 = 0$ $= 1011100111_2$

5. $(147)_8 = (1100111)_2$

Okta	Biner
147_8	1 4 7 001 100 111 $= 1100111_2$

6. $(011010111)_2 = (327)_8$

Biner	Okta
011010111_2	001 010 111 3 2 7 $= 327_8$

7. $(1980)_8 = (1152)_{10} = (10010000000)_2$

Okta	Desimal	Biner
1980_8	$(1 \times 8^3) + (9 \times 8^2) + (8 \times 8^1) + (0 \times 8^0)$ $512 + 576 + 64 + 0 = 1152$ $= 1152_{10}$	$1152 \div 2 = 576$ $576 \div 2 = 288$ $288 \div 2 = 144$ $144 \div 2 = 72$ 0 0 0 0

		$72 \div 2 = 36$	0
		$36 \div 2 = 18$	0
		$18 \div 2 = 9$	0
		$9 \div 2 = 4$	1
		$4 \div 2 = 2$	0
		$2 \div 2 = 1$	0
		$1 \div 2 = 0$	1
		$= 1001000000_2$	

8. $(11011)_2 = (27)_{10}$

Biner	Desimal
11011_2	$(1 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (1 \times 2^1) + (1 \times 2^0)$ $16 + 8 + 0 + 2 + 1$ $= 27_8$

9. $(833)_{10} = (1501)_8$

Desimal	Okta
833_{10}	$833 \div 8 = 104$ $104 \div 8 = 13$ $13 \div 8 = 1$ $1 \div 8 = 0$ $= 1501_8$

10. $(23)_8 = (19)_{10}$

Okta	Desimal
23_8	$(2 \times 8^1) + (3 \times 8^0)$ $16 + 3 = 19$ $= 19_{10}$

11. $(100011)_2 = (67)_{10}$

Okta	Desimal
100011_2	$(1 \times 2^6) + (0 \times 2^5) + (0 \times 2^4) + (0 \times 2^3) + (1 \times 2^1) + (1 \times 2^0)$ $64 + 0 + 0 + 0 + 2 + 1 = 67$ $= 67_{10}$

12. $(100)_{10} = (1100100)_2$

Desimal	Biner
100_{10}	$100 \div 2 = 50$ $50 \div 2 = 25$ $25 \div 2 = 12$ $12 \div 2 = 6$ $6 \div 2 = 3$

	$ \begin{aligned} 3 \div 2 &= 1 \\ 1 \div 2 &= 0 \\ &= 1100100_2 \end{aligned} $	1 1
--	--	--------

13. $(31)_8 = (9)_{10}$

Okta	Desimal
31_8	$ \begin{aligned} (1 \times 8^1) + (1 \times 8^0) \\ 8 + 1 = 9 \\ = 9_{10} \end{aligned} $

14. $(78)_{10} = (116)_8$

Desimal	Okta
78_{10}	$ \begin{aligned} 78 \div 8 &= 9 & 6 \\ 9 \div 8 &= 1 & 1 \\ 1 \div 8 &= 0 & 1 \\ &= 116_8 \end{aligned} $

15. $(1101)_2 = (13)_{10}$

Biner	Desimal
1101_2	$ \begin{aligned} (1 \times 2^3) + (1 \times 2^2) + (0 \times 2^1) + (1 \times 2^0) \\ 8 + 4 + 0 + 1 \\ = 13_{10} \end{aligned} $

16. $(11010)_2 = (32)_8$

Biner	Okta
11010_2	$ \begin{array}{ll} 011 & 010 \\ 3 & 2 \\ = 32_8 \end{array} $

17. $(1001000)_2 = (48)_{16}$

Biner	Hexa
1001000_2	$ \begin{array}{ll} 0100 & 1000 \\ 4 & 8 \\ = 48_{16} \end{array} $

18. $1101_{(2)} + 1011_{(2)} = (11000)_2$

$$\begin{array}{r}
 1101 \\
 + 1011 \\
 \hline
 11000
 \end{array}$$

$$19. 1111011 - 101001 = (1010010)_2$$

$$\begin{array}{r} 1111011 \\ -0101001 \\ \hline 1010010 \end{array}$$

$$20. 01011011 + 01001110 = (10101001)_2$$

$$\begin{array}{r} 01011011 \\ +01001110 \\ \hline 10101001 \end{array}$$

$$21. 111101 - 101001 = (010100)_2$$

$$\begin{array}{r} 111101 \\ -101001 \\ \hline 010100 \end{array}$$

$$22. 11101 + 10110 + 1100 + 11011 + 1001 = (1101111)_2$$

$$\begin{array}{r} 11101 \\ +10110 \\ \hline 110011 \\ +01100 \\ \hline 111111 \\ +11011 \\ \hline 1011010 \\ +01001 \\ \hline 1101111 \end{array}$$