

# Penyelesaian Lengkap

## Praktis 2

### Praktis Formatif

#### 2.1 Nombor Asas Number Bases

1

	Nombor/Number	Nilai-nilai $n$ (2 hingga 10) yang mungkin <i>Possible values of n (2 to 10)</i>
(a)	$4335_n$	6, 7, 8, 9, 10
(b)	$1891_n$	10
(c)	$1011_n$	2, 3, 4, 5, 6, 7, 8, 9, 10
(d)	$652_n$	7, 8, 9, 10
(e)	$1231_n$	4, 5, 6, 7, 8, 9, 10
(f)	$3743_n$	8, 9, 10
(g)	$8776_n$	9, 10
(h)	$5555_n$	6, 7, 8, 9, 10
(i)	$221_n$	3, 4, 5, 6, 7, 8, 9, 10

2 (a)

Nombor dalam asas 3 Number in base 3	1	2	0	1
Nilai tempat/Place value	$3^3$	$3^2$	$3^1$	$3^0$

(b)

Nombor dalam asas 9 Number in base 9	1	7	6	2	1
Nilai tempat/Place value	$9^4$	$9^3$	$9^2$	$9^1$	$9^0$

(c)

Nombor dalam asas 4 Number in base 4	3	3	3	0
Nilai tempat/Place value	$4^3$	$4^2$	$4^1$	$4^0$

(d)

Nombor dalam asas 6 Number in base 6	1	4	5	3	1
Nilai tempat/Place value	$6^4$	$6^3$	$6^2$	$6^1$	$6^0$

3 (a)

Nombor dalam asas 8 Number in base 8	6	6	7	1
Nilai tempat/Place value	$8^3$	$8^2$	$8^1$	$8^0$

$$1 \times 8^0 = 1$$

(b)

Nombor dalam asas 5 Number in base 5	1	2	3	4
Nilai tempat/Place value	$5^3$	$5^2$	$5^1$	$5^0$

$$3 \times 5^1 = 15$$

(c)

Nombor dalam asas 7 Number in base 7	6	3	5	1
Nilai tempat/Place value	$7^3$	$7^2$	$7^1$	$7^0$

$$6 \times 7^3 = 2058$$

(d)

Nombor dalam asas 2 Number in base 2	1	0	1	0	1
Nilai tempat/Place value	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$

$$1 \times 2^4 = 16$$

4 (a)

Nombor dalam asas 2/Number in base 2	1	1	0	0	0	1
Nilai tempat/Place value	$2^5$	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$

$$(1 \times 2^5) + (1 \times 2^4) + (1 \times 2^0) = 49_{10}$$

(b)

Nombor dalam asas 3 Number in base 3	2	1	2	2
Nilai tempat/Place value	$3^3$	$3^2$	$3^1$	$3^0$

$$(2 \times 3^3) + (1 \times 3^2) + (2 \times 3^1) + (2 \times 3^0) = 71_{10}$$

(c)

Nombor dalam asas 4/Number in base 4	1	3	3
Nilai tempat/Place value	$4^2$	$4^1$	$4^0$

$$(1 \times 4^2) + (3 \times 4^1) + (3 \times 4^0) = 31_{10}$$

(d)

Nombor dalam asas 5 Number in base 5	2	4	0	3
Nilai tempat/Place value	$5^3$	$5^2$	$5^1$	$5^0$

$$(2 \times 5^3) + (4 \times 5^2) + (3 \times 5^0) = 353_{10}$$

(e)

Nombor dalam asas 6 Number in base 6	3	2	5	4
Nilai tempat/Place value	$6^3$	$6^2$	$6^1$	$6^0$

$$(3 \times 6^3) + (2 \times 6^2) + (5 \times 6^1) + (4 \times 6^0) = 754_{10}$$

(f)

<b>Nombor dalam asas 7</b> <i>Number in base 7</i>	2	5	2	6
<b>Nilai tempat/Place value</b>	$7^3$	$7^2$	$7^1$	$7^0$

$$(2 \times 7^3) + (5 \times 7^2) + (2 \times 7^1) + (6 \times 7^0) = 951_{10}$$

(g)

<b>Nombor dalam asas 8</b> <i>Number in base 8</i>	3	4	2	0
<b>Nilai tempat/Place value</b>	$8^3$	$8^2$	$8^1$	$8^0$

$$(3 \times 8^3) + (4 \times 8^2) + (2 \times 8^1) = 1808_{10}$$

(h)

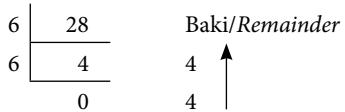
<b>Nombor dalam asas 9/Number in base 9</b>	4	6	8
<b>Nilai tempat/Place value</b>	$9^2$	$9^1$	$9^0$

$$(4 \times 9^2) + (6 \times 9^1) + (8 \times 9^0) = 386_{10}$$

5 (a)

<b>Nombor dalam asas 2</b> <i>Number in base 2</i>	1	1	1	0	0
<b>Nilai tempat/Place value</b>	$2^4$	$2^3$	$2^2$	$2^1$	$2^0$

$$(1 \times 2^4) + (1 \times 2^3) + (1 \times 2^2) = 28_{10}$$



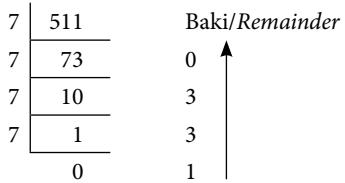
$$28_{10} = 44_6 = 4(6)^1 + 4(6)^0$$

Dengan perbandingan/*By comparison*,  
 $n = 4, m = 1$

(b)

<b>Nombor dalam asas 5</b> <i>Number in base 5</i>	4	0	2	1
<b>Nilai tempat/Place value</b>	$5^3$	$5^2$	$5^1$	$5^0$

$$(4 \times 5^3) + (2 \times 5^1) + (1 \times 5^0) = 511_{10}$$



$$511_{10} = 1330_7 = 1(7)^3 + 3(7)^2 + 3(7)^1$$

Dengan perbandingan/*By comparison*,  
 $n = 2, m = 3$

(c)

<b>Nombor dalam asas 8</b> <i>Number in base 8</i>	6	7	0
<b>Nilai tempat/Place value</b>	$8^2$	$8^1$	$8^0$

$$(6 \times 8^2) + (7 \times 8^1) = 440_{10}$$

3	440	Baki/Remainder
3	146	2
3	48	2
3	16	0
3	5	1
3	1	2
	0	1

$$440_{10} = 121022_3 = (3)^5 + 2(3)^4 + (3)^3 + 2(3)^1 + 2$$

Dengan perbandingan/*By comparison*,  
 $n = 2, m = 5$

6  $900_{10} = x(9)^3 + 2(9)^y + z$ 

9	900	Baki/Remainder
9	100	0
9	11	1
9	1	2
	0	1

$$900_{10} = 1210_9 = 1(9)^3 + 2(9)^2 + 1(9)$$

Secara perbandingan/*By comparison*,  
 $x = 1, y = 2, z = 9$

7 (a) Nilai digit 2 dalam  $27_{10}$  ialah 20.

*Value of digit 2 in  $27_{10}$  is 20.*

2	20	Baki/Remainder
2	10	0
2	5	0
2	2	1
2	1	0
	0	1

$$20_{10} = 10100_2$$

(b) Nilai digit 2 dalam  $7208_9$  ialah  $2 \times 9^2 = 162$ .

*Value of digit 2 in  $7208_9$  is  $2 \times 9^2 = 162$ .*

4	162	Baki/Remainder
4	40	2
4	10	0
4	2	2
	0	2

$$162_{10} = 2202_4$$

(c) Nilai digit 2 dalam  $2000_7$  ialah  $2 \times 7^3 = 686$ .

*Value of digit 2 in  $2000_7$  is  $2 \times 7^3 = 686$ .*

9	686	Baki/Remainder
9	76	2
9	8	4
	0	8

$$686_{10} = 842_9$$

8 (a)

0	1	0		1	0	0
4	2	1		4	2	1
2				4		
	↓			↓		
2				4		

$$\therefore 10100_2 = 24_8$$

(b)

0	1		0	0	1		1	1	1
2	1		4	2	1		4	2	1
1			1				4 + 2 + 1		
↓			↓				↓		
1			1				7		

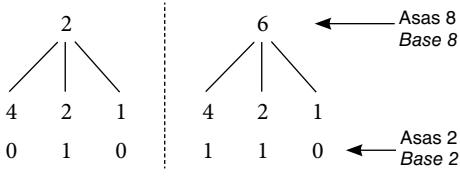
$$\therefore 1001111_2 = 117_8$$

(c)

1		1	1		0	1	0
1		4	2	1	4	2	1
1		4 + 2 + 1			2		
↓		↓			↓		
1		7			2		

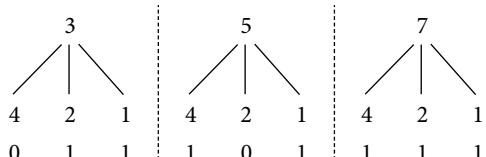
$$\therefore 1111010_2 = 172_8$$

9 (a)



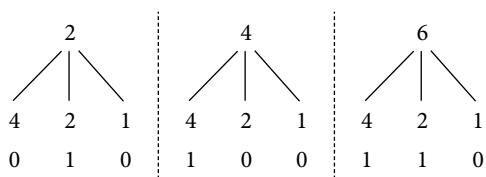
$$\therefore 26_8 = 10110_2$$

(b)



$$\therefore 357_8 = 11101111_2$$

(c)



$$246_8 = 10100110_2$$

10 (a)  $111_2 = (1 \times 2^2) + (1 \times 2^1) + (1 \times 2^0) = 7_{10}$

3	7	Baki/Remainder
3	2	
0	2	

$$111_2 = 21_3$$

(b)  $232_5 = (2 \times 5^2) + (3 \times 5^1) + (2 \times 5^0) = 67_{10}$

4	67	Baki/Remainder
4	16	
4	4	0
4	1	0
0	1	

$$232_5 = 1003_4$$

(c)  $257_8 = (2 \times 8^2) + (5 \times 8^1) + (7 \times 8^0) = 175_{10}$

6	175	Baki/Remainder
6	29	
6	4	5
0	0	4

$$257_8 = 451_6$$

(d)

9	310	Baki/Remainder
9	34	
9	3	7
0	0	3

$$310_{10} = 374_9$$

11 (a)  $110_2 + 111_2 = 1101_2$

$$\begin{array}{r}
 110_2 \\
 + 111_2 \\
 \hline
 1101_2
 \end{array}$$

(b)  $1122_3 + 1211_3 = 10110_3$

$$\begin{array}{r}
 1122_3 \\
 + 1211_3 \\
 \hline
 10110_3
 \end{array}$$

(c)  $302_4 + 323_4 = 1231_4$

$$\begin{array}{r}
 302_4 \\
 + 323_4 \\
 \hline
 1231_4
 \end{array}$$

(d)  $2304_5 + 321_5 = 3130_5$

$$\begin{array}{r}
 2304_5 \\
 + 321_5 \\
 \hline
 3130_5
 \end{array}$$

$$(e) \quad 244_6 + 355_6 = 1043_6$$

$$\begin{array}{r} 244_6 \\ + 355_6 \\ \hline 1043_6 \end{array}$$

$$(f) \quad 1356_7 + 6423_7 = 11112_7$$

$$\begin{array}{r} 1356_7 \\ + 6423_7 \\ \hline 11112_7 \end{array}$$

$$(g) \quad 3574_8 + 226_8 = 4022_8$$

$$\begin{array}{r} 3574_8 \\ + 226_8 \\ \hline 4022_8 \end{array}$$

$$(h) \quad 1286_9 + 2377_9 = 3674_9$$

$$\begin{array}{r} 1286_9 \\ + 2377_9 \\ \hline 3674_9 \end{array}$$

$$12 \quad (a) \quad 11011_2 - 101_2 = 10110_2$$

$$\begin{array}{r} 11011_2 \\ - 101_2 \\ \hline 10110_2 \end{array}$$

$$(b) \quad 2202_3 - 121_3 = 2011_3$$

$$\begin{array}{r} 2202_3 \\ - 121_3 \\ \hline 2011_3 \end{array}$$

$$(c) \quad 330_4 - 233_4 = 31_4$$

$$\begin{array}{r} 330_4 \\ - 233_4 \\ \hline 31_4 \end{array}$$

$$(d) \quad 3122_5 - 241_5 = 2331_5$$

$$\begin{array}{r} 3122_5 \\ - 241_5 \\ \hline 2331_5 \end{array}$$

$$(e) \quad 531_6 - 242_6 = 245_6$$

$$\begin{array}{r} 531_6 \\ - 242_6 \\ \hline 245_6 \end{array}$$

$$(f) \quad 600_7 - 55_7 = 512_7$$

$$\begin{array}{r} 600_7 \\ - 55_7 \\ \hline 512_7 \end{array}$$

$$(g) \quad 2710_8 - 701_8 = 2007_8$$

$$\begin{array}{r} 2710_8 \\ - 701_8 \\ \hline 2007_8 \end{array}$$

$$(h) \quad 3100_9 - 254_9 = 2735_9$$

$$\begin{array}{r} 3100_9 \\ - 254_9 \\ \hline 2735_9 \end{array}$$

13 2 bahagian = 20

2 parts = 20

1 bahagian = 10

1 part = 10

(a) 7 bahagian/7 parts

$$= 7 \times 10 = 70$$

Terdapat 70 orang murid yang menggemari putih dan hitam.

*There are 70 pupils who like white and black.*

3	70	Baki/Remainder
3	23	1
3	7	2
3	2	1
0		2

Terdapat  $2121_3$  orang murid yang menggemari putih dan hitam.

*There are  $2121_3$  pupils who like white and black.*

(b) 10 bahagian/parts

$$= 10 \times 10 = 100$$

$$\sqrt{x} = 100$$

$$x = 10\ 000$$

9	10000	Baki/Remainder
9	1111	1
9	123	4
9	13	6
9	1	4
0		1

Nilai  $x$  dalam asas sembilan ialah  $14641_9$ .

*The value of  $x$  in base nine is  $14641_9$ .*

(c) Terdapat 10 orang murid yang menggemari merah sebab 1 bahagian = 10 orang murid.

*There are 10 pupils who like red because 1 part = 10 pupils.*

2	10	Baki/Remainder
2	5	0
2	2	1
2	1	0
0		1

Terdapat  $1010_2$  orang murid yang menggemari merah.

*There are  $1010_2$  pupils who like red.*

14 (a)  $\frac{35}{100} \times 300 = 105$

8	105	Baki/Remainder
8	13	1
8	1	5
0		1
	1	

$$105_{10} = 151_8$$

(b)  $\frac{15}{100} \times 300 = 45$

6	45	Baki/Remainder
6	7	3
6	1	1
0		1
	1	

$$45_{10} = 113_6$$

(c)  $\frac{2}{100} \times 300 = 6$

$$6_{10} = 20_3$$

3	6	Baki/Remainder
3	2	0
0		2
	0	

15

$$\begin{array}{ccc} 10_3 & \longrightarrow & 3_{10} \\ 1111_2 & \longrightarrow & 15_{10} \\ 103_6 & \longrightarrow & 39_{10} \end{array}$$

Beza/Difference =  $15 - 3 = 12$

Jadi, urutan ialah/So, the sequence is  $3, 15, 27, 39, 51$   
 $a_5 = 27_{10}, b_4 = 51_{10}$

5	27	Baki/Remainder
5	5	2
5	1	0
0		1
	1	

4	51	Baki/Remainder
4	12	3
4	3	0
0		3
	3	

Oleh itu/Therefore,  $a = 102$  dan  $b = 303$

16 (a) Katakan  $x$  = harga sebijik nanas dalam RM

Let  $x$  = the price of a pineapple in RM

Katakan  $y$  = harga sebijik tembakai susu dalam RM

Let  $y$  = the price of a honeydew melon in RM

Persamaan/Equation (1):  $110_2 x + 10_2 y = 1112_4$

Persamaan/Equation (2):  $x = 100_3$

110_2		6_{10}
10_2		2_{10}
1112_4		86_{10}
100_3		9_{10}

Maka/Thus,  $x = 9$

Ganti  $x = 9$  ke dalam persamaan(1):

Substitute  $x = 9$  into equation (1):

$$6(9) + 2y = 86$$

$$y = 16$$

$$= 22_7$$

7	16	Baki/Remainder
7	2	2
0		2
	2	

$$(b) 12_3(9) + 21_3(16) = 5(9) + 7(16)$$

$$= 157$$

$$= 1112_5$$

$$\begin{array}{ccc} 12_3 & \longrightarrow & 5_{10} \\ 21_3 & \longrightarrow & 7_{10} \end{array}$$

5	157	Baki/Remainder
5	31	2
5	6	1
5	1	1
0		1

### Praktis Sumatif

#### Kertas 1

- |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 2 | D | 3 | B | 4 | C | 5 | D |
|   | A |   | D |   | C |   | B |   | C |

#### Kertas 2

#### Bahagian/Section A

$$\begin{aligned} 1 & 21202_3 \\ & = 2(3^4) + 1(3^3) + 2(3^2) + 2(3^0) \\ & = 209_{10} \end{aligned}$$

6	209	5
6	34	4
6	5	5
0		5

$$21202_3 = 209_{10} = 545_6$$

$$k = 4$$

$$2 \quad (a) 1011_3 = 1(3^3) + 1(3^1) + 1(3^0)$$

$$= 31_{10}$$

4	31	3
4	7	3
4	1	3
0		1

$$1011_3 = 31_{10} = 133_4$$

Maka/Thus,  $n = 1$

$$(b) 70_9 = 7(9^1) \\ = 63_{10}$$

4	63
4	15
4	3
0	3
	3

$$70_9 = 63_{10} = 333_4$$

Maka/Thus,  $n = 3$

- 3 Bilangan murid/Number of students:  $33_4 = 15_{10}$   
 $33_4 = 3(4^1) + 3(4^0) = 15_{10}$   
 Markah purata/Average marks:  $240_5 = 70_{10}$   
 $240_5 = 2(5^2) + 4(5^1) = 70_{10}$   
 Jumlah markah/Total marks =  $70 \times 15$   
 $= 1050_{10}$   
 $= 1386_9$

9	1050
9	116
9	12
9	1
0	1

$$4 253_6 = 2(6^2) + 5(6^1) + 3(6^0) \\ = 105_{10}$$

Harga selepas 30% diskaun/Price after 30% discount:  
 $253_6 = 105_{10}$   
 Harga asal/Original price =  $105 \div 0.7$   
 $= 150_{10}$   
 $= 1100_5$

5	150
5	30
5	6
5	1
0	1

### Bahagian/Section B

$$5 (a) 55506 - 1239 = 54267_{10} \\ = 2202102220_3$$

3	54267
3	18089
3	6029
3	2009
3	669
3	223
3	74
3	24
3	8
3	2
0	2

$$(b) 76734_8 = 7(8^4) + 6(8^3) + 7(8^2) + 3(8^1) + 4(8^0) \\ = 32220_{10} \\ 1100110101_2 = 1(2^9) + 1(2^8) + 1(2^5) + 1(2^4) + 1(2^2) \\ + 1(2^0) \\ = 821_{10} \\ 32220 - 821 = 31399$$

7	31399
7	4485
7	640
7	91
7	13
7	1
0	1

$$76734_8 - 1100110101_2 = 32220_{10} - 821_{10} \\ = 160354_7$$

$$6 2468_9 = 2(9^3) + 4(9^2) + 6(9^1) + 8(9^0) \\ = 1844_{10}$$

6	1844
6	307
6	51
6	8
6	1
0	1

$$1844_{10} = 12312_6$$

Maka/Thus,  $h = 12312$

3	1844
3	614
3	204
3	68
3	22
3	7
3	2
0	2

$$1844_{10} = 2112022_3$$

Maka/Thus,  $m = 2112022$

4	1844
4	461
4	115
4	28
4	7
4	1
0	1

$$1844_{10} = 130310_4$$

Maka/Thus,  $n = 130310$

$$7 (a) 54_8, 1200_3, m_6, 101111_2$$

$$54_8 = 5(8^1) + 4(8^0) \\ = 44_{10}$$

$$1200_3 = 1(3^3) + 2(3^2)$$

$$= 45_{10}$$

Tukar kepada asas 10/Convert to base 10:

$$44, 45, m_6, 47$$

Maka/Thus,  $m_6 = 46$

$$\begin{array}{r} 46 \\ \hline 6 | \quad 7 \\ \hline 1 \\ \hline 0 \end{array} \quad \begin{array}{r} 4 \\ 1 \\ 1 \\ \hline \end{array}$$

$$m_6 = 114_6$$

$$m = 114$$

$$(b) 235_6, 165_7, p_8, q_9, 1203_4$$

$$235_6 = 2(6^2) + 3(6^1) + 5(6^0)$$

$$= 95_{10}$$

$$165_7 = 1(7^2) + 6(7^1) + 5(7^0)$$

$$= 96_{10}$$

Tukar kepada asas 10/Convert to base 10:

$$95, 96, p_8, q_9, 99$$

Maka/Thus,  $p_8 = 97$  dan/and  $q_9 = 98$

$$\begin{array}{r} 97 \\ \hline 8 | \quad 12 \\ \hline 1 \\ \hline 0 \end{array} \quad \begin{array}{r} 1 \\ 4 \\ 1 \\ \hline \end{array}$$

$$\begin{array}{r} 98 \\ \hline 9 | \quad 10 \\ \hline 1 \\ \hline 0 \end{array} \quad \begin{array}{r} 8 \\ 1 \\ 1 \\ \hline \end{array}$$

$$p_8 = 141_8 \text{ dan/and } q_9 = 118_9$$

Oleh itu/Hence,  $p = 141$  dan/and  $q = 118$