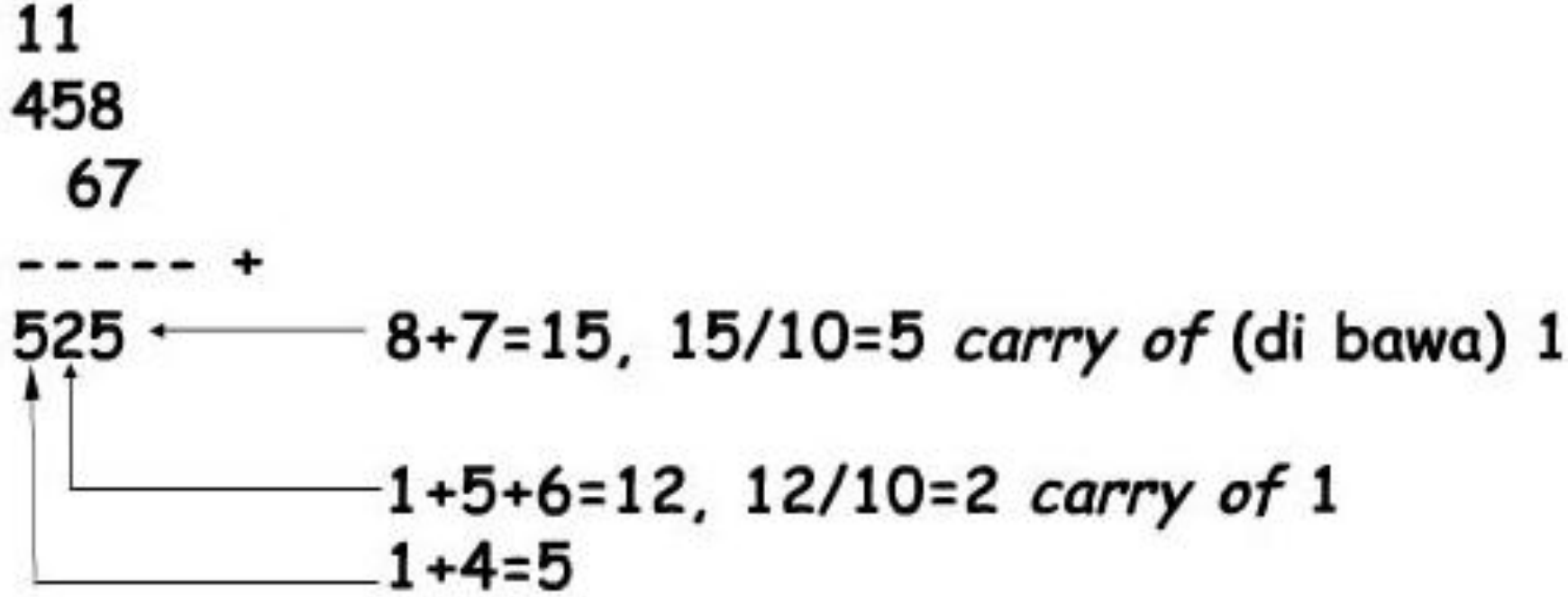
ARITMATIKA SISTEM BILANGAN

Penjumlahan Sistem Bilangan Desimal

Contoh : 458 + 67 = ……$_{(10)}$



Pengurangan Sistem Bilangan Desimal

Contoh : 524 - 78 = $\cdots\cdots_{(10)}$

```
 524
  78
 ----- -
 446
```

4-8=x, *borrow of* (pinjam) 1->10, 10+4-8=14-8=6

2 diambil 1 tinggal 1-7=x, 10+1-7=11-7=4

5-1=4

Perkalian Sistem Bilangan Desimal

Contoh : 57 x 24 = $\cdots\cdots_{(10)}$

```
   57
   34
  ----- x
  228          4x7=28, 28/10=2 sisa 8
 171           4x5=20+2=22, 22/10=2 sisa 2
------- +      3x7=21, 21/10=2 sisa 1
 1938          3x5=15+2=17, 17/10=1 sisa 7
```

Pembagian Sistem Bilangan Desimal

Contoh : 125 : 5 = ...(10)

```
5/ 125 \ 25
    10
   ---- -
    25
    25
   ---- -
     0
```

Penjumlahan Sistem Bilangan Biner

Prinsip : $0 + 0 = 0$

$0 + 1 = 1$

$1 + 0 = 1$

$1 + 1 = 2/2=0$ *carry of* 1 (1 sisa 0)

Contoh : 1011 + 11 = ...$_{(2)}$

```
  11
1011
  11
------ +
1110 ← 1+1=2/2, 1 sisa 0
       1+1=0, 0+1=1 co 1
       1+0=1
```

Pengurangan Sistem Bilangan Biner

Prinsip : 0 - 0 = 0

1 - 0 = 1

1 - 1 = 0

0 - 1 = 1 *borrow of* 1

Contoh : 1001 - 11 = ……..(2)

1001

11

---- -

110 ← 1-1=0

0-1=x, *borrow of* 1->2, 2-1=1

-1=x, bo 1->2, 2-1=1

Perkalian Sistem Bilangan Biner

Prinsip : $0 \times 0 = 0$
$0 \times 1 = 0$
$1 \times 0 = 0$
$1 \times 1 = 1$

Contoh : $101 \times 11 = \ldots\ldots_{(2)}$

```
  101
   11
 ----- x
  101
 101
------- +
 1111
```

Pembagian Sistem Bilangan Biner

Prinsip : 0 : 1 = 0

1 : 1 = 1

Contoh : 11001 : 101 = ...(2)

101 / 11001 \101

101

0010

0

101

101

0

Penjumlahan Sistem Bilangan Oktal

Contoh : $376_{(8)} + 45_{(8)} = \ldots\ldots_{(8)}$

```
  11
  376
   45
------ +
  443
```

5+6=11, 11/8=**1** sisa 3

1+7+4=12, 12/8=**1** sisa 4

1+3=4

Pengurangan Sistem Bilangan Oktal

Contoh : $4352_{(8)} - 764_{(8)} = \ldots\ldots_{(8)}$

```
 4352
  764
------ -
 3366  <-- 2-4=x, bo 1, 1->8, 8+2-4=10-4=6
```

5-1=4, 4-6=x, *bo* 1, 1->8, 8+4-6=12-6=6

3-1=2, 2-7=x, *bo* 1, 1->8, 8+2-7=10-7=3

4-1=3

Penjumlahan Sistem Bilangan Hexa

Contoh : $176_{(16)} + 8C_{(16)} = \ldots\ldots_{(16)}$

```
  176
   8C
------ +
  2Q2   <-- 6+C=6+12=18, 18/16=1 sisa 2
   ^ <-- 7+8=15+1=16, 16/16=1 sisa 0
   | <-- 1+1=2
```

Pengurangan Sistem Bilangan Hexa

Contoh : $B435_{(16)} - A7D_{(16)} = \ldots\ldots_{(16)}$

```
  B435
   A7D
------ -
  A9B8  <-- 5-D=5-13=x, bo 1, 1->16, 16+5-13=21-13=8
   ^ <-- 3-1=2, 2-7=x, bo 1, 1->16, 16+2-7=18-7=11 (B)
   | <-- 4-1=3, 3-A=3-10=x, bo 1, 1->16, 16+3-10=19-10=9
   | <-- B-1=11-1=10 (A)
```

TUGAS

Kerjakan operasi matematis berikut

a. 10010 + 10001
b. 00100 + 00111
c. 10111 - 00101
d. 10011 x 01110
e. 10001 x 10111