

LAB 2 : ประเภทข้อมูล การคำนวณทางคณิตศาสตร์ การรับและการแสดงผล

1 What is the value of mystery after this sequence of statements?

```
int mystery = 1;
mystery = 1 - 2 * mystery;
mystery = mystery + 1;
```

mystery =

2 What is wrong with the following sequence of statements?

```
int mystery = 1;
mystery = mystery + 1;
int mystery = 1 - 2 * mystery;
```

.....

3 Write the following mathematical expressions in C++.

$s = s_0 + v_0 t + \frac{1}{2} g t^2 =$

$G = 4\pi^2 \frac{a^3}{p^2(m_1+m_2)} =$

$c = \sqrt{a^2 + b^2 - 2ab \cos y} =$

4 Write the following C++ expressions in mathematical notation.

- a. `dm = m * (sqrt(1 + v / c) / sqrt(1 - v / c) - 1);`

- b. `volume = PI * r * r * h;`

- c. `volume = 4 * PI * pow(r, 3) / 3;`

- d. `z = sqrt(x * x + y * y);`

5 What are the values of the following expressions? In each line, assume that

- `double x = 2.5; double y = -1.5; int m = 18; int n = 4;`
- a. `x + n * y - (x + n) * y`
 - b. `m / n + m % n`
 - c. `5 * x - n / 5`
 - d. `1 - (1 - (1 - (1 - (1 - n))))`
 - e. `sqrt(sqrt(n))`

6 What are the values of the following expressions? In each line, assume that

char s[] = "Hello"; char t[] = "World"; char *z;

- a. strlen(s) + strlen(t)
- b. strncpy(z, t+1, 3)
- c. strncpy(z, s+strlen(s)/2, 2)
- d. strcat(s, t)
- e. strcat(t, s)

7 Write a program that reads a number between 1,000 and 999,999 from the user and prints it with a comma separating the thousands. Here is a sample dialog; the user input is in color:

Please enter an integer between 1000 and 999999: 23456

23,456

```
# include <stdio.h>

int main ( void ){

    int num;

    .....

    .....

    .....

}
```

8 *Writing large letters.* A large letter H can be produced like this: (โดยใช้ตัวแปรชนิด String เพียงตัวแปรเดียว)

```
*   *
*   *
*****
*   *
*   *
```

```
# include <stdio.h>

# include <string.h>

int main ( void ){

    .....

    .....

    .....

}
```