

Practice 2

• Problem 1: Binary expressions

- Get two integer inputs from a user, and store them in variables
- Do the five basic arithmetic operations (+, -, *, /, %) of the two numbers
- Print the results of operations as follows

```
Enter two integer numbers: 10 25
10 + 25 = 35
10 - 25 = -15
10 * 25 = 250
10 / 25 = 0.4
10 % 25 = 10
계속하려면 아무 키나 누르십시오 . . .
```

• Problem 2: Compound Assignments

- Define two variables (x and y), and initialize them to 20 and 45, respectively. Both are integers.
- Write a program code that does the following arithmetic operations. Only compound assignment expressions is allowed, so that you should convert the operations into compound assignment forms

```
x = x * y  
x = x - y  
y = y + 5  
x = x * 10  
y = x % y
```

- Print x and y using cout after every operation so as to show the changes of the variables.

```
x: 20 y: 45  
x: 900 y: 45  
x: 855 y: 45  
x: 855 y: 50  
x: 8550 y: 50  
x: 8550 y: 0
```

• Problem 3: Postfix and Unary expressions

- Write a program that evaluate the following postfix and unary expressions

- Expressions:


`x++ + y++`

`++x - --z`

`--x + y++`

`x-- + x-- - y--`

`x + y - --x + x++ - --y`



Correct results for each line

- Initialize three variables: `x = 2`, `y = 3`, and `z = 2`.
- Print the result of each line using `cout` command.
Example:
`cout << x++ + y++;`
- Execute the operation sequentially, and keep the changes of the three variables.
- Write your own comments in your code explaining how the expressions are sequentially evaluated.

Example:

`cout << x++ + y++;`

`//cout << x + y << endl; x = x+1; y=y+1;`

• Problem 4: Static Type Casting

- The following program code calculates the mean of 5 numbers.
- This program prints an incorrect answer (fractions are omitted).
- Correct the program by adding appropriate type casting command or appropriately defining the variables.

```
#include <iostream>
using namespace std;

int main () {
    int num1 = 87, num2 = 98, num3 = 56, num4 = 50, num5 = 95;
    float average;
    average = (num1 + num2 + num3 + num4 + num5) / 5;
    cout << average << endl;
    return 0;
}
```

• Problem 5: Modular Operator

- Write a program that gets a 4-digit number from a user, and print each digit reversely.
- For example, a user's input 1234 would be printed as 4321.
- Hint: separate the individual digit of the number using the modular operator (%; see Program 3-10), and store each digit in separate integer variable. Then, print the variables reversely.

Output result

```
Your input: 1234  
Reversed output: 4321
```

• Problem 6: Length conversion

- Write a program that converts and prints a user-supplied measurements in inches into the following unit
 - Foot (12 inches)
 - Centimeter (0.394 inches)
 - Yard (36 inches)
 - Meter (39.37 inches)
- The output should be

```
Your measurement in inch: 2
2 inch =
0.1666 foot
5.0761 centimeter
0.0555 yard
0.0508 meter
```

(note the precision for floating points)

• Problem 7: Fruit Shop

- Write a program that calculates total price of a purchase
- A user supplies the number of his/her purchase for the following 5 fruit items
 - Apple, banana, peach, grape, melon
 - Unit price of the items
apple: 5000
banana: 1500
peach: 3500
grape: 6000
melon: 1200
- The program calculates total price of the purchase and reports the result as follows

```
How many apples did you buy: 2
How many bananas did you buy: 2
How many peaches did you buy: 3
How many grapes did you buy: 1
How many melons did you buy: 4
Price for apple: 2 * 5000 = 10000
Price for banana: 2 * 1500 = 3000
Price for peach: 3 * 3500 = 10500
Price for grape: 1 * 6000 = 6000
Price for melon: 4 * 1200 = 4800
Total price of your purchase: 34300
```