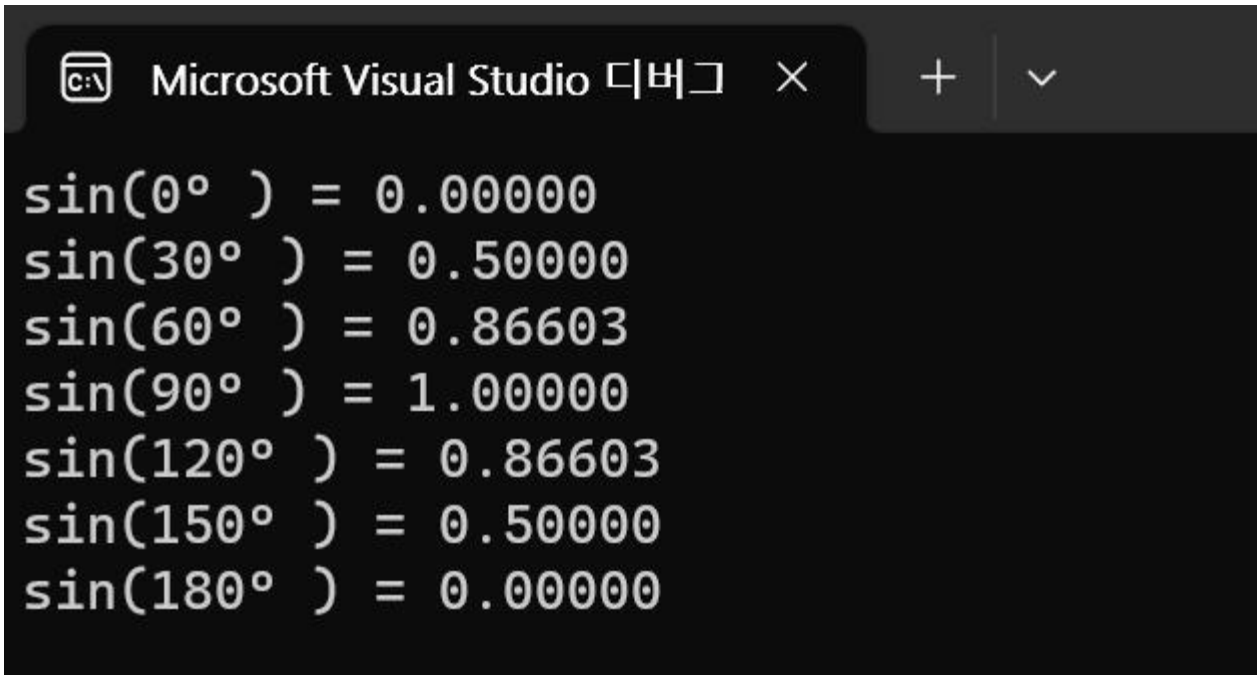
2019313550_박병현

실습 1.

```c
#include <stdio.h>  // printf 함수를 위한 헤더 파일
#include <math.h>   // sin 함수를 위한 헤더 파일

#define Pi 3.141592
int main() {
    int degree; // 각도 값을 저장할 변수
    double radian;  // degree의 라디안 값을 저장할 변수
    for (degree = 0; degree <= 180; degree += 30) {
        radian = (Pi * degree) / 180;    // 각도를 라디안 단위로 변환
        printf("sin(%d° ) = %.5lf \n", degree, sin(radian));
    }
    return 0;
}
```

실습 1 실행 화면.



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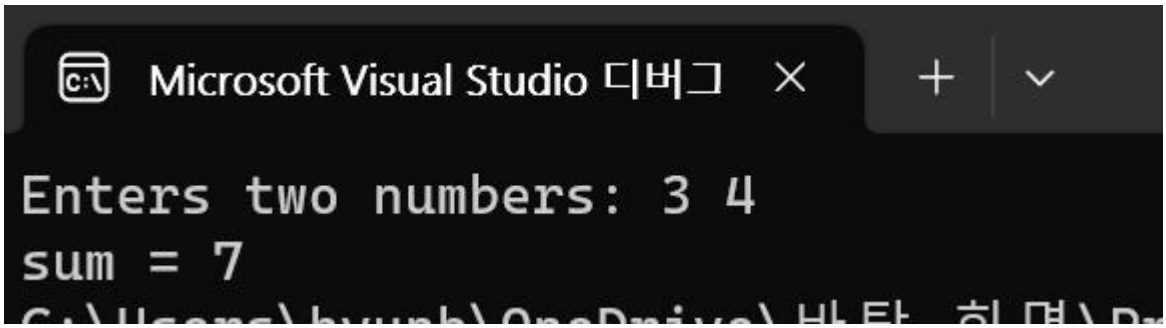
실습 2.

```
#include <stdio.h>

int addNumbers(int a, int b);                // function prototype

int main() {
        int n1, n2, sum;
        printf("Enters two numbers: ");
        scanf("%d %d", &n1, &n2);

        sum = addNumbers(n1, n2);                // function call
        printf("sum = %d", sum);
        return 0;
}

int addNumbers(int a, int b) {               // function definition
        int result;
        result = a + b;
        return result;                                  // return statement
}
```

실습 2 실행 화면.



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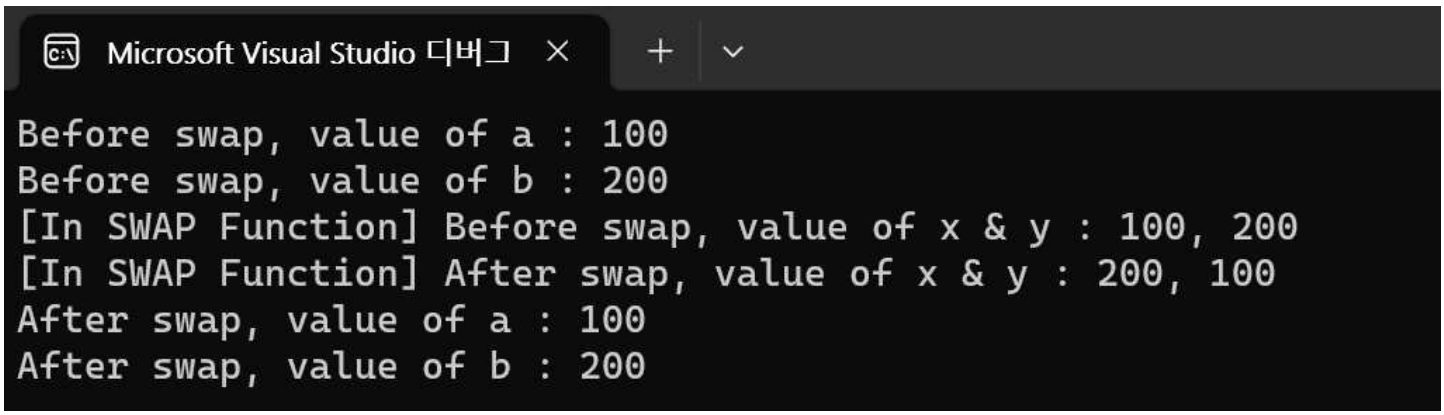
실습 3.

```c
#include <stdio.h>

/* function delacration */
void swap(int x, int y);

int main() {
	/* local vatiable definition */
	int a = 100;
	int b = 200;

	printf("Before swap, value of a : %d\n", a);
	printf("Before swap, value of b : %d\n", b);
	/* calling a function to swap the values*/
	swap(a, b);
	printf("After swap, value of a : %d \n", a);
	printf("After swap, value of b : %d \n", b);
	return 0;
}

void swap(int x, int y) {
	int temp;
	printf("[In SWAP Function] Before swap, value of x & y : %d, %d\n", x, y);

	temp = x; /* save the value of x*/
	x = y; /* put y into x */
	y = temp; /* put temp into y*/

	printf("[In SWAP Function] After swap, value of x & y : %d, %d \n", x, y);
	return;
}
```

실습 3 실행 화면.



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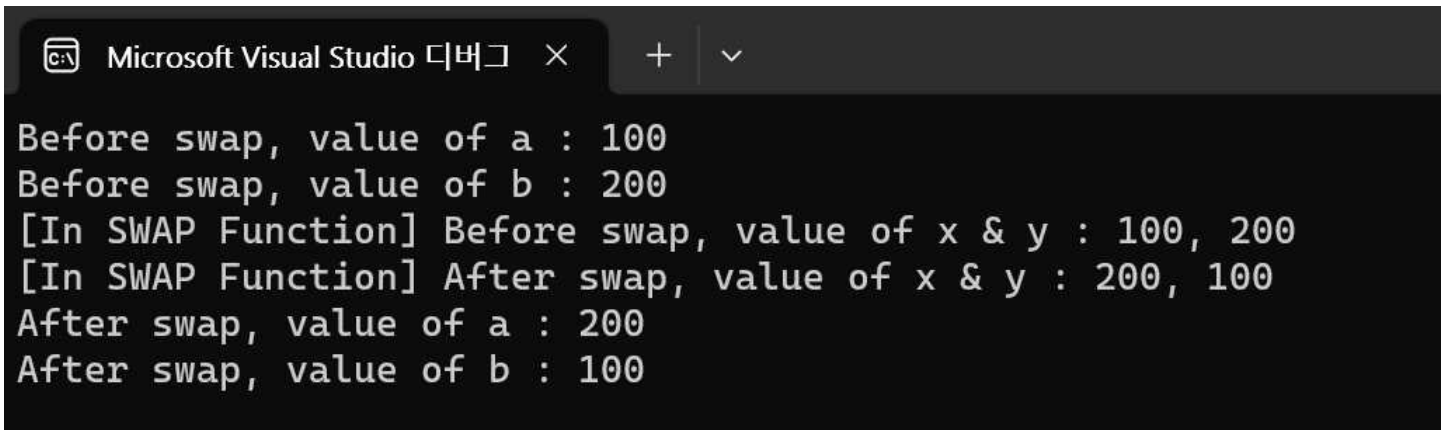
실습 4.

```c
#include <stdio.h>

/* function delacration */
void swap(int* x, int* y);

int main() {
	/* local vatiable definition */
	int a = 100;
	int b = 200;

	printf("Before swap, value of a : %d\n", a);
	printf("Before swap, value of b : %d\n", b);
	/* calling a function to swap the values*/
	swap(&a, &b);
	printf("After swap, value of a : %d \n", a);
	printf("After swap, value of b : %d \n", b);
	return 0;
}

void swap(int* x, int* y) {
	int temp;
	printf("[In SWAP Function] Before swap, value of x & y : %d, %d\n", *x, *y);

	temp = *x; /* save the value of x*/
	*x = *y; /* put y into x */
	*y = temp; /* put temp into y*/

	printf("[In SWAP Function] After swap, value of x & y : %d, %d \n", *x, *y);
	return;
}
```

실습 4 실행 화면.



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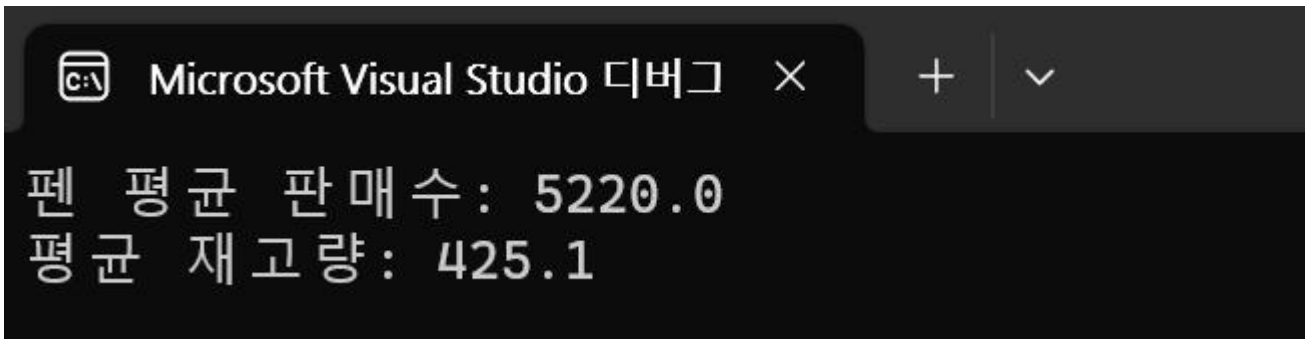
실습 5.

```c
#include <stdio.h>
double array_avg(int arr[], int n);          // 함수의 원형 선언

int main() {
    int pen[4] = { 4500, 5370, 4920, 6090 };
    int monthly_stock[12] = { 505, 409, 389, 257, 450, 501, 500, 621, 480, 350, 389, 250 };

    double average;

    average = array_avg(pen, 4);             // 연 평균 판매수 구하기
    printf("펜 평균 판매수: %.1lf \n", average);
    average = array_avg(monthly_stock, 12); // 연 평균 재고량 구하기
    printf("평균 재고량: %.1lf \n", average);

    return 0;
}

// 배열 원소가 n개 있는 arr 배열의 평균을 구하는 함수
double array_avg(int arr[], int n) {
    int i, sum = 0;

    for (i = 0; i < n; i++)
        sum = sum + arr[i];

    return (double)sum / n;
}
```

실습 5 실행 화면.



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실습 6.

mymath.h 코드

```
#pragma once
int fact(int n);
int power(int base, int exp);
```

power.c 코드

```
#include "mymath.h"

int power(int base, int exp) {
	int result = 1;
	int i;
	for (i = 1; i <= exp; ++i) {
		result *= base;
	}
	return result;
}
```

fact.c 코드

```
#include "mymath.h"

int fact(int n) {
	if (n == 0) {
		return 1;
	}
	else {
		return n * fact(n - 1);
	}
}
```

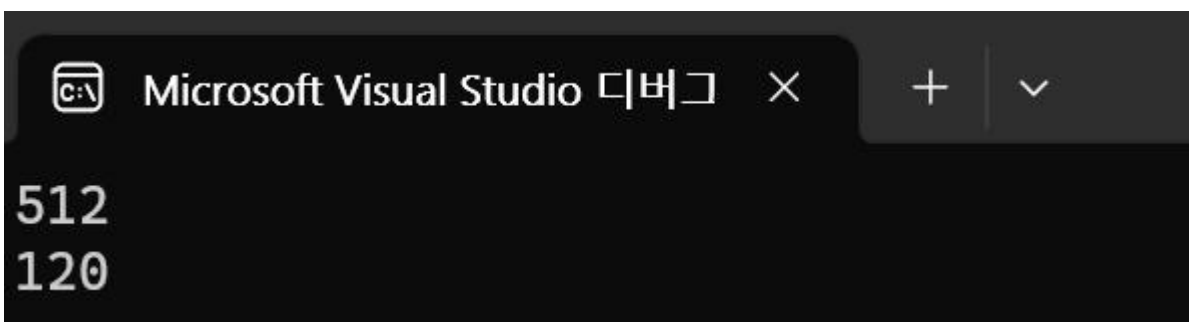
Lab08_6 코드

```
#include <stdio.h>
#include "mymath.h"

int main() {
	printf("%d\n", power(2, 9));
	printf("%d\n", fact(5));

	return 0;
}
```

실습 6 실행 화면.



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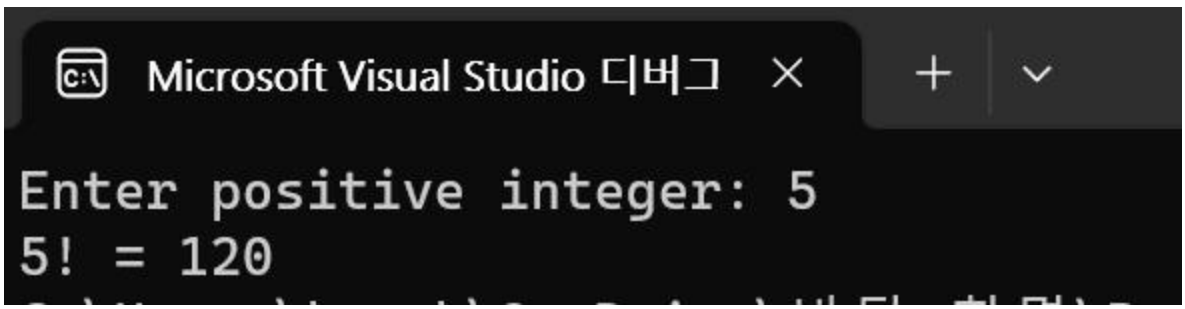
실습 7.

```
#include <stdio.h>
int fact2(int n); /* Function Definition */

void main() {
    int num, res;
    printf("Enter positive integer: ");
    scanf("%d", &num);
    res = fact2(num); /* Normal Function Call */
    printf("%d! = %d", num, res);
}

int fact2(int n) { /* Function Definition */
    int f = 1;
    if (n <= 0) {
        return(1);
    }
    else {
        // Recursive Function Call as fact( ) calls itself
        f = n * fact2(n - 1);
        return(f);
    }
}
```

실습 7 실행 화면.



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실습 8.

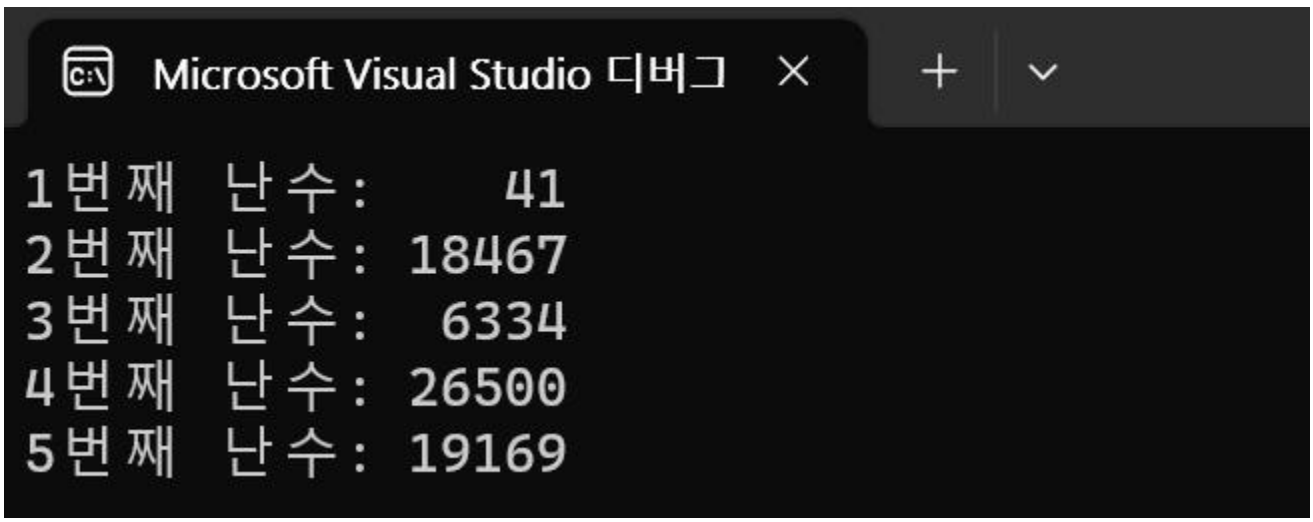
```c
#include <stdio.h>
#include <stdlib.h> // rand 함수를 위한 헤더 파일

int main() {
    int i, random;

    for (i = 1; i <= 5; i++) {
        random = rand(); //난수를 얻어 random 변수에 저장
        printf("%d번째 난수: %5d \n", i, random);
    }

    return 0;
}
```

실습 8 실행 화면.



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실습 9.

```c
#include <stdio.h>
#include <stdlib.h>        // rand 함수를 위한 헤더 파일
#include <time.h>          // time 함수를 위한 헤더 파일


int main() {
    int i, random;

    srand(time(NULL));
    // time 함수를 실행할 때 컴퓨터의 현재 시간을 rand 함수의 씨드로 설정하기
    // srand(2);
    for (i = 1; i <= 5; i++) {
        random = rand();    // 난수를 얻어 random 변수에 저장
        printf("%d번째 난수: %5d \n", i, random);
    }
    return 0;
}
```

실습 9 실행 화면.