Variables basic calculations

• There are five basic arithmetic operation in C.

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>+</td>
<td>addition</td>
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<tr>
<td>−</td>
<td>subtraction</td>
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<tr>
<td>*</td>
<td>multiplication</td>
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<tr>
<td>/</td>
<td>division</td>
</tr>
<tr>
<td>%</td>
<td>modulo</td>
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• They can be performed on numbers and variables. The order of operation is the usual (multiply before addition etc..).
Remainder and modulo operations

• When two integers are divided, the result is truncated, so the result is the integer part of the division.

• The modulo operation (%) is performed only on division of two integers, returning the remainder of this division.

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<tr>
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<th>±11 / ±5</th>
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<tr>
<td>-11</td>
<td>11</td>
<td>a</td>
</tr>
<tr>
<td>-2</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>-2</td>
<td>-5</td>
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The left side is the division result
The right side is the remainder
Exercise 1

• Write a program that calculates the area and the perimeter of a rectangle with length 5 and width 3, print the results to the screen.
#include <stdio.h>

int main()
{
    /* doing calculations */
    int perimeter = 2*3+2*5;
    int area = 3*5;

    //printing the result
    printf("The perimeter is: %d and the area is: %d", perimeter, area);
    return 0;
}

Some comments..

• We usually want our program to work on general two (positive) integers not only on 3 and 5, so we might use scanf instead. See a problem in the current program with this approach ?(or something that need to be changed?).

• An alternative is to use #define instruction, but it is more for constants like Pie 3.14.. We will talk about it in the next class.
Exercise 2

• Get two integers of the user (using scanf) and print the result and the remainder of the integer division a:b.
#include <stdio.h>

int main()
{
    int a, b;
    printf("Please enter a and b\n");
    scanf("%d%d", &a, &b);
    printf("The integer division result is: %d and the remainder is: %d\n", a/b, a%b);
    return 0;
}