

## Practice for Exam 1

These questions should start off as extremely easy in the first section. They should take only seconds to derive the solution even if writing them out takes a couple minutes. If there is one explicit programming question on the exam (question #4 from the sample), most likely it will involve loops as that will incorporate more coverage. If there are two, there's likely to be something without loops first.

## Operators and Variables

Write a program that reads in two numbers from the user and calculates the difference between three times the first number and half of the second number, and then prints out the result. Your program should not round off or drop any fractional or decimal component of this result.

Write a program that figures out the area of a rectangle when the user inputs its length and width. (Now try perimeter. How about for circles?)

Write a program that reads in two strings and determines if they are equal. If they are, output "EQUAL" and if they are not, output "NOT".

## Conditions

Write a program that reads in a single character from the user, and then prints out a message saying either: "You entered a Y or a y" or "You entered something other than Y or y in response."

Write a program that reads in a value for a dinner bill with a valid range from 0 to 500. Write checks to verify that the user entered a proper value. Once it is determined that the value is valid, compute 20% of that value and report that value as the required tip for a meal of that cost.

Write a program that reads in three integers from the user. If the third integer is a 0, then output the addition of the first two integers. If it is a 1, then subtract the first two. If it is a 2 then multiply the first two. If it is a 3 then divide the first two. If it is not in the range from 0 - 3 then output the result of taking the first and applying the modulus operator (%) with the second and output the result to the user.

## Loops

Write a program that reads in a single number from the user, and then prints out that many different even numbers. (How about odd? How about multiples of 5?)

Write a program to read in 5 integer values from the user and compute their average as a decimal value.

Write a program that reads in a value from the user and creates a box of asterisks that wide and tall. At first, do this with a filled box (as we have in class). Then do this with an empty box:

Example: 4 3

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****
*  *
****
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Write a loop that continues as long as the user presses 'y'. (Perhaps combine this with the box program to allow the user to create more boxes if they wish).