PROBLEM

1. Write a program that prompts the user to enter two integers as in the example below. (The underlined numbers in bold denote the user’s response to each prompt, and do not need to be displayed with underlines or in bold.) Compute the sum, difference, product, integer quotient, integer remainder, and floating-point quotient of the two inputs, storing each result in its own variable. Output the results as in the example:

Enter first integer: **17**  
Enter second integer: **3**  
17 + 3 = 20  
17 - 3 = 14  
17 \* 3 = 51  
[17 / 3] = 5  
17 MOD 3 = 2  
17 / 3 = 5.6667

ANALYSIS

IPO Chart

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Variable | Type | Input | Processing | Output |
| first\_integer | Integer | X |  | X |
| second\_integer | Integer | X |  | X |
| sum | Integer |  | X | X |
| difference | Integer |  | X | X |
| product | Integer |  | X | X |
| integer\_quotient | Integer |  | X | X |
| integer\_remainder | Integer |  | X | X |
| float\_quotient | Float |  | X | X |

CONSTANTS

None.

FORMULAS

sum 🡨 first\_integer + second\_integer

difference 🡨 first\_integer - second\_integer

product 🡨 first\_integer x second\_integer

integer\_quotient 🡨 [first\_integer / second\_integer]

integer\_remainder 🡨 first\_integer MOD second\_integer

float\_quotient 🡨 first\_integer / second\_integer

TEST DATA

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| # | first  \_integer | second  \_integer | sum | difference | product | integer  \_quotient | integer  \_remainder | float  \_quotient |
| 1 | 17 | 3 | 20 | 14 | 51 | 5 | 2 | 5.6667 |
| 2 | 5 | 3 | 8 | 2 | 15 | 1 | 2 | 1.6667 |
| 3 | 40 | 3 | 43 | 37 | 120 | 13 | 1 | 13.3333 |
| 4 | 89 | 63 | 152 | 26 | 5607 | 1 | 26 | 1.4127 |
| 5 | 1 | 5 | 6 | -4 | 5 | 0 | 1 | 0.2000 |

DESIGN (PSEUDOCODE)

**Declare** first\_integer, second\_integer, sum, difference, product, integer\_quotient, integer\_remainder As Integer

**Declare** float\_quotient As Float

**Write** “Enter first integer”

**Input** first\_integer

**Write** “Enter second integer”

**Input** second\_integer

**Set** sum 🡨 first\_integer + second\_integer

**Set** difference 🡨 first\_integer - second\_integer

**Set** product 🡨 first\_integer x second\_integer

**Set** integer\_quotient 🡨 [first\_integer / second\_integer]

**Set** integer\_remainder 🡨 first\_integer MOD second\_integer

**Set** float\_quotient 🡨 first\_integer / second\_integer

**Write** "Enter first integer: " + first\_integer

**Write** "Enter second integer: " + second\_integer

**Write** first\_integer + " + " + second\_integer + " = " + sum

**Write** first\_integer + " - " + second\_integer + " = " + difference

**Write** first\_integer + " \* " + second\_integer + " = " + product

**Write** "[" + first\_integer + " / " + second\_integer + "]" + " = " + integer\_quotient  
**Write** first\_integer + " MOD " + second\_integer + " = " + integer\_remainder

**Write** first\_integer + " / " + second\_integer + " = " + float\_quotient