AP Computer Science A Name: Mustafa Sarp Gerzen **Unit 1A Review**

1.01 Introduction to Algorithms, Programming, and Compilers

Define the following terms.

programming language **A formal set of rules to write instructions a computer can execute**	**Algorithm** **A step by step procedure to solve a problem**
pseudocode **Informal step by step language code**	**Sequencing** **Executing statements in specific order**
class **Defines objects data and behavior**	**Method** **Block of code in a class that can be called as a function**
IDE **Software that combines code, debug editor**	**Compiler** **A tool that helps the code to run**

1.02 Variables & Data Types

Define the following terms.

variable **Storage location that holds a value**	**primitive variable** **Variable of data type that stores the value directly, everything except string**
reference variable **Holds an reference to an object, example: string**	**data type** **Defines what kind of variable can be hold**
`int` `Integer variable type`	`Double` `Any number can be expressed by decimals`
`boolean` `True or false`	`String` `Basically textual data`

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declaring a variable **Introduce type + name**	**initializing a variable** **Give the variable a value**

Declare the following variables. Make sure you use the correct type.

Declare a variable called `num` with the value 10. Int num = 10;	Declare a variable called `pi` with the value 3.14159 Double pi = 3.14159
Declare a variable called `isRaining` with the value true Boolean isRaining = True;	Declare a variable called `word` with the value Hello String word = “Hello”;

1.03 Expressions and Output

Integer Division and Mod

1 / 2 = 0	4 / 2 = 2	13 / 4 = 3	3 / 4 =0
1 % 2 = 1	4 % 2 = 0	13 % 4 = 1	3 % 4 =3

How do you access the last digit of `num`? num%10	How do you remove the last digit of `num`? num/10

Solve these problems using P-MD%-AS.

8 - 18 / 6 * 4 -4	25 * 3 + 11 / 2 80

13 % 5 - 2 * 3 -3	20 / 3 * 6 % 7 1

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1.04 Assignment Statements and Input

Write code that does the following:

Imports the Scanner class.	import java.util.Scanner;
Creates a Scanner object.	Scanner in = new Scanner(System.in);
Gets an integer value and stores it in the variable num.	int num = in.nextInt();
Gets a decimal value and stores it in the variable num2.	double num2 = in.nextDouble();
Gets the next line of text and stores it in the variable line.	String line = in.nextLine();
Gets the next word of text and stores it in the variable word.	String word = in.next();

1.05 Casting and Range of Variables

What is the result of the following expressions?

1 / 2 = 0	13 / 4 = 3	3 / 4 = 0	(int) 4.7 =4
(double) 1 / 2 = 0.5	(double) 13 / 4 = 3.25	(double) 3 / 4 = 0.75	(int) 3.3 = 3

What line of code would round the number num to the nearest

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1.06 Compound Assignment Operators

Trace the values of the variables in the table below. **line of code value of `value`**	**line of code value of `count` `int`**
`int value = 50;`	`count = 120;`
`value += 10;`	`count += 35;`
`60`	`155`
`value -= 15;`	`count -= 5;`
`45`	`150`
`value *= 2;`	`count *= 3;`
`90`	`450`
`value /= 4;`	`count /= 10;`
`22`	`45`
`value %= 5;`	`count %= 8;`
`2`	`5`