

AP Computer Science A

Partner Coding Challenges!

College Board Alignment

Unit 1 Topic 5



Primitive Types

1.5 Casting and Ranges of Variables

2.B Determine the result or output based on statement execution order in a code segment without method calls (other than output).

5.B Explain why a code segment will not compile or work as intended.

ENDURING UNDERSTANDING

CON-1

The way variables and operators are sequenced and combined in an expression determines the computed result.

LEARNING OBJECTIVE

CON-1.C

Evaluate arithmetic expressions that use casting.

ESSENTIAL KNOWLEDGE

CON-1.C.1

The casting operators `(int)` and `(double)` can be used to create a temporary value converted to a different data type.

CON-1.C.2

Casting a `double` value to an `int` causes the digits to the right of the decimal point to be truncated.

CON-1.C.3

Some programming code causes `int` values to be automatically cast (widened) to `double` values.

CON-1.C.4

Values of type `double` can be rounded to the nearest integer by `(int)(x + 0.5)` or `(int)(x - 0.5)` for negative numbers.

CON-1.C.5

Integer values in Java are represented by values of type `int`, which are stored using a finite amount (4 bytes) of memory. Therefore, an `int` value must be in the range from `Integer.MIN_VALUE` to `Integer.MAX_VALUE` inclusive.

CON-1.C.6

If an expression would evaluate to an `int` value outside of the allowed range, an integer overflow occurs. This could result in an incorrect value within the allowed range.

Pair Programming

- Today's lab involves solving three problems using **Pair Programming** -- this is where *both* partners are coding *together* on the *same* Replit (just like a shared Google Doc)!
- Follow the instructions at the beginning of the lab to create your "shared" Replit projects, then work together to code up solutions to the programming challenges.
- Each partner should submit their *own* individual copy of the Google Doc lab sheet for grading, but the copied/pasted code should be the *same* for both partners!