

Worksheet 01 - Operators & Expressions

- a) Evaluate each of the following expression below, and indicate its value in the box provided. Be sure to specify the appropriate type of the result (e.g., 7.0 rather than 7 for a double, Strings in "quotes", true or false for a boolean).

`3 + 4 * 5 / 2`

`"over " + 80 + " = old"`

`57 % 10 / 3 + 1.25 * 4`

`5 + 2 + "(1 + 1)" + 4 + 2 * 3`

b) How many unique items can be encoded (represented) within a computer using each of the following?

- a. 1 bit _____
- b. 4 bits _____
- c. 5 bits _____
- d. 2 bytes _____

c) In which of the following answers does the number of bits decrease from most (on the left) to fewest (on the right)?

- a) byte, long, int, short
- b) long, int, byte, char
- c) long, int, char, byte
- d) int, short, char, byte

d) Which of the following is **not** a legal Java statement?

- a) `int w = (int) 888.8;`
- b) `byte x = (byte) 100L;`
- c) `long y = (byte) 100;`
- d) `byte z = (int) 100L;`

e) Indicate (by circling) which of the following are **valid/invalid** identifiers in Java, and for each identifier, briefly explain why it is valid/not?

- a. RESULT _____
- b. 12345 _____
- c. x12345y _____
- d. black&white _____
- e. answer_7 _____

- f) For each of the following expressions, indicate the order in which the operators will be evaluated (by writing a number beneath each operator):

$a - b - c - d ;$

$a + b / c / d ;$

$a \% b / c * d ;$

$(a - (b - c)) - d ;$

$(a + b) * (c / d) \% e ;$

- g) What is the difference between an automatic (promotion) and a manual cast (demotion)? Under what circumstances are automatic casts performed?