COMP.2030 LAB 10/11/23

1. In a 32-bit machine, consider two arbitrary values x and y:

int x = random(); unsigned ux = (unsigned) x;

int y = random(); unsigned uy = (unsigned) y;

For each of the following C expressions, indicate whether the expression always yields 1 (true). If it does not always yield 1, give an example that make it yield 0 (false).

* 1. ((x+y) << 4) + y - x == 17\*y + 15\*x
  2. ~x + ~y + 1 == ~(x+y) (Note: -x = ~x + 1 except when x=Tmin)
  3. (ux-uy) == -(unsigned)(y-x)
  4. (x < y) == (-x > -y)
  5. ux – uy == -(y – x)
  6. (x >= 0) || (x < ux)