

CSCI 2330 – Integer Logic Exercises

Let ux be an arbitrary unsigned int and let x be an arbitrary signed int. Assume that all constants are signed. For each statement below, decide whether the statement is true or false. If the statement is false, demonstrate with a counterexample.

Hint: T_{\min} is often a useful counterexample.

1. $ux \geq 0$

2. $ux > -1$

3. $x < 0$ implies $(x * 2) < 0$

4. $x > y$ implies $-x < -y$

5. $x > 0 \ \&\& \ y > 0$ implies $x + y > 0$

6. $x \geq 0$ implies $-x \leq 0$

7. $x \leq 0$ implies $-x \geq 0$

8. $x \ \& \ 7 == 7$ implies $(x \ \ll \ 30) < 0$

9. $(x \ | \ -x) \ \gg \ 31 == -1$