Simulation

Exercise 1:

1. typical inputs, $64 \Rightarrow 8$

2. minimum and maximum valid inputs, $0, \ 32767$

3. invalid inputs, and $-1, \ -32768, \ -4$

4. randomly-chosen values. $35, \ -268$

Give examples of appropriate test inputs for each of the above categories if you were testing a circuit that computed the square root of a 16-bit signed number.

$0 \rightarrow 32767$ positive 16-bit signed integers

$-1 \rightarrow -32768$ negative " " ,

Exercise 2: What's the difference between **wait(x) y='1;** and **@(x) y='1;?**

wait for any change in X

wait until X is non-zero

Exercise 3: How could you:

(a) terminate the simulation if a test vector failed?

(b) change the clock frequency to 10 MHz?

(c) print each test vector as it's read?

(d) assert the reset input for two clock cycles?

(a) if $\left(\text{out} \ != \text{out}\_ \right) \{$

  $\$$finish();

$\}$

(c) n = $\$$fscanf $(\cdots)$;

  $\$$display $(\cdots)$;

(b) always #0.05us clk = ~clk;

(d) test vectors:

  $\begin{matrix} 1,0,0 \\ 1,0,0 \end{matrix} \}$ reset asserted for 2 clock cycles

  $0,1,1$

  $0,2,1$

  ⋮