These expressions are inside of input\_diff\_length.txt.

[20 pts]

* Different variable length:

V\_a<<v\_A

aBc\_-Var

Ram+Zxy\_

Short expressions are inside of input\_simple\_expressions.txt.

[22 pts]

* REG-REG:

a\*b

(((a-b)\*c/d\*((e<<f)^((a>>b)&(c|d))))+(e-f) // Inside input\_reg\_reg.txt

* REG-CONST:

a\*23 // ADDI 23 to register and then MUL.

b/3 // ADDI 3 to registers and then DIV.

c-7 // ADDI -7 instead of moving 7 to reg and then SUB.

d+987 // ADDI d and 987.

((a<<3)+4)\*((i^8)/99)>>((a-3)+(i/7))<<1 // Inside input\_reg\_const.txt

* CONST-REG:

4/f // Add 4 to register then SLL.

3&a // ANDI a with 3

((3<<a)+b)\*((8|c)/a)>>((3&b)+(7/a))<<a // Inside input\_const\_reg.txt

* CONST-CONST:

4>>2 // 4 >> 2 = 1 (Do not use registers!).

(((3-2)+2\*(5/4))<<7)+(90>>(2|1))&99 // Inside input\_const\_const.txt

* UNARY:

(-d)\*d // SUB d with X0.

-1 // -1 (Do not use registers!).

(~c)/c // XORI c with -1.

~230 // ~230 (Do not use registers!).

((~c)\*(-3))&((~0)+(-c)) // Inside input\_unary.txt

These expressions are inside of input\_strong\_reduction.txt.

[22 pts]

* Strong reduction:

a\*2 // a << 1 (reg-const)

c/8 // c >> 3 (reg-const)

4\*b // b << 2 (const-reg)

These expressions are inside of input\_load\_upper\_imm.txt.

[10 pts]

* LUI:

e+6143 // LI 4096 & ADDI 2047

f/-6143 // LI -4096 & ADDI -2047

-6145<<c // LI -8192 & ADDI 2047

6145\*a // LI 8192 & ADDI -2047