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I pledge my honor that I have abided by the Stevens Honor System.

Problem 1:

```
for (i = 0; i < 20; i++)  
    temp[i] = temp[i] + i;
```

Temp = X20

I = X9

ADD X9, XZR, XZR

Loop:

SUBIS X10, X9, #20

B.GTE Exit

LSL X8, X9, #3

ADD X8, X20, X8

LDUR X7, [X8, #0]

ADD X7, X7, X9

STUR X7, [X8, #0]

ADDI X9, X9, #1

B Loop

Exit:

Problem 2:

B[6] = A[i + j];

i = X19

j = X20

A = X21

B = X22

ADD X9, X19, X20

LSL X9, X9, #3

ADD X6, X21, X9

LDUR X8, [X22, #48]

LDUR X7, [X6, #0]

ADDI X8, X7, #0

STUR X8, [X22, #48]

STUR X7, [X6, #0]

Problem 3:

if (a < b)

```

        a = b - a;
else
        a = 2*b;
a = X19
b = X20

        SUBIS X9, X19, X20
        B.LTE COND2
        SUB X19, X20, X19
        B Exit:
COND2:MULI X19, X20, #2
        Exit:

```

Problem 4:

```

        CMP X0, #2
        B.GE ELSE
        B DONE
ELSE:   LSR X1, X0, #2
DONE:

```

After the preceding code is executed, X1 will be 00000 1010 . Since X0 is 00010 1000, comparing X0 to 2 will activate the B.GE in the next line, as X0 is greater than 2, so a right bitshift will take place.

Problem 5:

```

        ADDI X10, XZR, #1
        ADDI X11, X10, #0
LOOP:
        SUBIS X12, X11, #5
        B.GE DONE
        ADDI X11, X11, #1
        LSL X10, X10, #1
        B LOOP
DONE:

```

The final value in X10 is 10000, as X10 starts at 1 and every time the loop runs, it shifts left one bit, and the loop runs 4 times.

Problem 6:

```

int caller(void) {

```

```

    int x = 2;
    int y = 3;
    int z;
    z = addition(x, y);
    return z;
}
int addition(int a, int b) {
    return (a + b);
}

```

```

ADDI X0, XZR, #2
ADDI X1, XZR, #3
ADDI X2, XZR, XZR
SUBI SP, SP, #24
STUR X2, [SP, #0]
STUR X0, [SP, #8]
STUR X1, [SP, #16]
BL L1
LDUR X2, [SP, #0]
ADDI SP, SP, #16
BR LR
B Exit:
L1:
LDUR X2, [SP, #0]
LDUR X0, [SP, #8]
LDUR X1, [SP, #16]
ADD X2, X1, X0
STUR X2, [SP, #0]
STUR X0, [SP, #8]
STUR X1, [SP, #16]
BR LR

```