For each problem, please write the output in the margin.

Problem 1: counting

```
countdown = 5
while countdown > 1:
    print(countdown)
    countdown -= 1
```

Problem 2: loops inside loops

```
i = 1
while i <= 3:
    j = 1
    while j <= i:
        print(i)
        j += 1
    print('END')
    i += 1
```

Problem 3: can we have a *break*, please?

```
num = 0
while num < 500:
    num += 100
    print(str(num) + "?")
    if num == 300:
        break
    print('YES')
```

Problem 4: we must *continue* practicing loops!

```
num = 0
while num < 500:
    num += 100
    print(str(num) + "?")
    if num == 300:
        continue
    print('YES')
```

Problem 5: nested loops with a break

```python
num = 3
while num <= 5:
    is_prime = True
    potential_factor = 2
    while potential_factor < num:
        if num % potential_factor == 0:
            is_prime = False
            break
        potential_factor += 1
    if is_prime:
        print(str(num) + ' is prime')
    else:
        print(str(num) + ' is not')
    num += 1
```

Problem 6: iterating over input

```python
# assume next() returns 3 the first time it is called,
# 2 the 2nd time, 0 (3rd), 5 (4th), and -1 (5th and beyond)
total = 1
while True:
    num = next()
    if num < 0:
        break
    elif num == 0:
        continue
    total *= num
print(total)
```

Problem 7: heat map

```python
y = 0
# loop over rows
while y <= 3:
    x = 0
    # loop over columns
    while x <= 3:
        print(x+y, end='')
        x += 1
    print()
    y += 1
```