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: # i = 1, 2, 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**

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**

# 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**

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