Exam sample 2

What follows is a concrete example of the exam.

0.0.0.1 Question I: formal rules

You start at point (-10,20). Take 5 steps of magnitude (5,-5). Then take steps iof magnitude (0, 10) until you are above the line (0, 10). Where do you end up?

Answer: *The trajectory is:*

```
(-10,20) +
          \
           \    + (15,15)
            \   |
             \  |
              \ |
               \|
        (15,-5)+
```

Points: *25%.*

0.0.0.2 Question II: program state

Fill-in the program state with the values that the variables assume while running the sample below.

```
count = 1
for i in range(1, 5):
    count *= i
```

Answer: *The variable allocations are:*

```
count:    1       2       6       24
i:        1       2       3       4
```

Points: *25%.*

Grading: *Full points if all values are correctly listed in the right order. Half points if at least half of values are listed in the right order. Zero points otherwise.*

Associated learning goals: CMC.

0.0.0.3 Question III: variables, expressions, and data types

What is the value and the type of all variables after execution of the following code?

```
h = input("Wat is je naam?")
j = "Hello {}".format(h)
k = 10 / 3
l = k <= 3 or True
i = "Hello" + 1
```

Answer: *The value and type of all variables after execution is:*

Variable	Value	Type
h	'Youri'	string
j	'Hello Youri'	str
k	3.333333	float
l	True	boolean
i	Error, omdat je geen plus kan doen met een string en een int	error

Points: *25%.*

Grading: *All values and types are correct: full-points. At least half the values and at least half the types are correct: half points. Zero points otherwise.*

Associated learning goals: `VAR`, `EXPR`.

0.0.0.4 Question IV: control flow

General shape of the question: *What is the value of all variables after execution of the following code?*

Concrete example of question: *Draw what is printed on the screen after execution of the following code?*

```
output = ""
for i in range(0, 4):
    for j in range(0, 4):
        if (i + j) % 2 == 0:
            output += "0"
        else:
            output += "="
    output += "\n"
print(output)
```

Concrete example of answer: *The screen looks like:*

```
0=0=
=0=0
0=0=
=0=0
```

Points: *25%.*

Grading: *All values are correct: full-points. At least half the values are correct: half points. Zero points otherwise.*

Associated learning goals: `COND`, `LOOP`.