



0.3 Doing it again

Python quick start · Robot club · about 12 min

Name _____

Class _____

Date _____

What this lesson is about

for and while, indentation, and a square drawn with three lines instead of eight.

- A loop that counts
- A square
- A loop that keeps going

Questions

7 marks in all

1. What does this program print? [1 mark]

```
for i in range(4):  
    print("this is time number", i)
```

2. What does this program print? [1 mark]

```
for i in range(3):  
    print("side")  
print("done")
```

3. What does this program print? [1 mark]

```
for i in range(3):  
    print(i * 10)
```

4. What does this program make the robot do? [1 mark]

```
for i in range(4):  
    forward(50, distance=25)  
    turn_right(35, angle=90)  
stop()
```

- ☐ A Drive a square, turning clockwise, and finish near where it started
- ☐ B Drive one straight line 100 cm long
- ☐ C Drive a triangle
- ☐ D Drive a square, turning anticlockwise

5. You want the robot to drive a triangle with equal sides. How many degrees should `turn_right` turn at [1 mark] each corner?
-
6. The robot starts at heading 0 and runs `turn_right(35, angle=90)` three times. Ignoring small errors, [1 mark] what does `heading()` say? Give a whole number of degrees.
-
7. Why does a `while` loop that drives need a small `wait()` inside it? [1 mark]
- ☐ A So time passes and the robot moves between looks; without it the loop spins as fast as it can
 - ☐ B To make the robot drive more slowly
 - ☐ C Python gives an error for any loop without a wait
 - ☐ D So that `clock()` can start counting

The task: four corners

Drive a square: 30 cm a side, turning right at each corner, using a `for` loop. The four green squares are the corners it has to pass through.

```
from bugbot import *
connect()

for i in range(4):
    # one side and one corner
    forward(50, distance=30)

stop()
```

Plan your program here, then type it in and press Run.



Do it on the robot

www.bugbotlab.com/learn/start-3-loops/

The simulator checks it and tells you when it passes. Nothing to install, no account.

Challenges

1. Make the square go anticlockwise with `turn_left`.
2. Flash the light: `for` loop, `led("red")`, `wait(0.2)`, `led("off")`, `wait(0.2)`.
3. Drive a triangle. What angle does each corner need?