



F2.3 else, elif and Boolean operators

Decisions and loops · GCSE · OCR J277 2.2.1, AQA 8525 3.2.5, Edexcel

1CP2 1.2.3 · about 15 min

Name _____

Class _____

Date _____

What this lesson is about

Choosing between outcomes, and joining conditions with and, or and not.

- else: what to do otherwise
- elif: several choices
- Joining conditions: and, or, not
- Checking a range

Questions

8 marks in all

1. What does this program print?

[1 mark]

```
d = 30
if d < 20:
    print("stop")
elif d < 40:
    print("careful")
else:
    print("go")
```

2. With an `if` and an `else`, how many of the two blocks run?

[1 mark]

- ☐ A Exactly one
- ☐ B Both
- ☐ C Neither
- ☐ D It depends on the program

3. What does this program print?

[1 mark]

```
print(True and False)
print(True or False)
print(not True)
```

4. The traffic light checks `d < 40` first and `d < 20` second, with elif. What goes wrong when d is 10?

[1 mark]

- ☐ A It says careful instead of stop: the first True question wins
- ☐ B Nothing goes wrong
- ☐ C It says both
- ☐ D An error

5. What does this program print?

[1 mark]

```
d = 50
b = 10
if d > 30 and b > 20:
    print("drive")
else:
    print("stay")
```

6. What is `elif` short for? (two words)

[1 mark]

7. In a truth table, when is A OR B False?

[1 mark]

- ☐ A Only when A and B are both False
- ☐ B When either is False
- ☐ C When both are True
- ☐ D Never

8. What does this program print?

[1 mark]

```
d = 25
if d >= 20 and d <= 40:
    print("in the zone")
else:
    print("outside")
```

The task: traffic light

Drive 15 cm, then read the distance and set the LED: red and print `stop` if the wall is under 20 cm away; orange and `careful` if under 40; green and `go` otherwise. The wall is placed so that the right answer is orange, but write all three branches.

```
# the two lines every program starts with: the commands, then the robot
from bugbot import *
connect()

forward(50, distance=15)
d = distance()
if d < 20:
    led("red")
    print("stop")
```

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



Do it on the robot

www.bugbotlab.com/learn/f2-3-else-elif-and-boolean-operators/

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

Challenges

1. Add a fourth colour for "very far" (over 80 cm) to the traffic light. Where must its condition go?
2. Only drive if the battery is above 50 as well, using `and`.
3. Rewrite safe-to-go so the `blocked` case comes first, using `not`.