



F2.2 Selection: if

Decisions and loops · GCSE · OCR J277 2.2.1, AQA 8525 3.2.4, Edexcel
1CP2 6.5.2 · about 12 min

What this lesson is about

Relational operators, and a block that runs only when a condition is true.

- Questions with a yes-or-no answer
- if: run a block only when the answer is True
- Comparing text
- The answer can come from a variable

Questions

9 marks in all

1. What does this program print?

[1 mark]

```
speed = 40
if speed > 50:
    print("fast")
if speed > 30:
    print("medium")
if speed > 10:
    print("slow")
print("checked")
```

Answer:

```
medium
slow
checked
```

Three separate ifs are each checked. $40 > 50$ is False; $40 > 30$ and $40 > 10$ are both True.

2. What is the difference between `=` and `==` ?

[1 mark]

- ☐ A `=` stores a value, `==` asks whether two values are equal
- ☐ B They mean the same
- ☐ C `==` stores a value, `=` compares
- ☐ D `=` is for text, `==` for numbers

Answer: A. Mixing them up is one of the most common early mistakes.

3. Which comparison means "is not equal to"?

[1 mark]

- ☐ A `!=`
- ☐ B `<>`
- ☐ C `=!`
- ☐ D `not=`

Answer: A. `!=` is not equal. The others are not Python.

4. What does this program print?

[1 mark]

```
d = 25
print(d < 30)
print(d >= 30)
```

Answer:

True
False

A comparison gives True or False.

5. What happens to the block under an `if` when the question is False?

[1 mark]

- ☐ A It is skipped, and the program carries on below it
- ☐ B It runs anyway
- ☐ C The program stops
- ☐ D Python shows an error

Answer: A. The block runs only when the answer is True.

6. What does this program print?

[1 mark]

```
x = 7
if x % 2 == 0:
    print("even")
print("done")
```

Answer:

done

7 % 2 is 1, so the question is False and the block is skipped.

7. What does this program print?

[1 mark]

```
answer = "Yes"
if answer == "yes":
    print("driving")
print("done")
```

Answer:

done

"Yes" with a capital Y is a different string from "yes", so the condition is False.

8. d is exactly 40. Which condition is True?

[1 mark]

- ☐ A `d <= 40`
- ☐ B `d < 40`
- ☐ C `d > 40`
- ☐ D `d != 40`

Answer: A. Only the or-equal version includes 40 itself. The edge value is where selection mistakes hide.

9. How does AQA pseudo-code write "is equal to"?

[1 mark]

- ☐ A =
- ☐ B ==
- ☐ C ===
- ☐ D EQUALS

Answer: A. AQA pseudo-code uses a single = for equality (and ← for assignment). Python uses ==.

The task: near or far

Drive 20 cm. Then, with two separate `if` s: if the wall is less than 40 cm away, print `near` and make the LED red; if it is 40 or more, print `far` and make it green. The wall has been placed so the answer should be near, but write both.

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

forward(50, distance=20)
d = distance()
if d < 40:
    print("near")
```

The hint students can ask for: Drive 20 cm. Then use two ifs: if the wall is under 40 cm away print 'near' and make the LED red; if it is 40 or more, print 'far' and make it green.

A solution

```
from bugbot import *
connect()
forward(50, distance=20)
d = distance()
if d < 40:
    print('near')
    led('red')
if d >= 40:
    print('far')
    led('green')
```

Any program that meets the task's checks is marked correct in the simulator; this is one way, not the only way.