



F1.9 Arithmetic operators

Programming basics · GCSE · OCR J277 2.2.1, AQA 8525 3.2.3, Edexcel

1CP2 6.5.1 · about 15 min

Name _____

Class _____

Date _____

What this lesson is about

The seven operators, integer division and remainder, and the order they work in.

- The seven operators
- Integer division and remainder
- Division always gives a real number
- Order of operations
- Arithmetic with the robot

Questions

11 marks in all

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

```
print(20 / 5)
```

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

```
print(10 // 4)
print(10 % 4)
```

3. What is the value of $2 + 3 * 4$? [1 mark]

4. What is the value of $(2 + 3) * 4$? [1 mark]

5. Which of these is a float? [1 mark]

- ☐ A 4.0
- ☐ B 4
- ☐ C -3
- ☐ D 100

6. $x \% 2$ is 0 when x is even. What is it when x is odd? [1 mark]

- ☐ A 1
- ☐ B 0
- ☐ C 2
- ☐ D x

7. What does this program print?

[1 mark]

```
print(round(10 / 3, 2))
```

8. What is the value of `17 // 5`?

[1 mark]

9. What is the value of `17 % 5`?

[1 mark]

10. What does this program print?

[1 mark]

```
print(2 * 3 ** 2)
```

11. What does this program print?

[1 mark]

```
seconds = 135
print(seconds // 60, seconds % 60)
```

The task: robot maths

Using only the numbers 17 and 5 in your calculations, print four lines: `divide: 3.4`, `DIV: 3`, `MOD: 2` and `power: 25` (the power is 5 to the power 2). Work each one out with an operator; do not type the answers. The robot must not drive.

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

print("divide:", 17 / 5)
```

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



Do it on the robot

www.bugbotlab.com/learn/f1-9-arithmetic-operators/

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

Challenges

1. Print the distance ahead in metres instead of centimetres.
2. Ask for a number of seconds with `input` and print it as minutes and seconds.
3. Try `-7 // 2` and `-7 % 2`. The answers surprise most people. Work out the rule Python is using.