

Exercise walk-through

Math Class ■ 1.11

eXercise

You must be able to

- call **Math class** 数学类 methods such as `Math.abs`, `Math.pow`, and `Math.sqrt`
- understand that `Math.pow(b, e)` computes b^e and returns a double
- generate a **pseudorandom** 伪随机 double in $[0, 1)$ with `Math.random`
- scale and shift `Math.random` to produce a random `int`

Method — Common Math methods

- `Math.abs(-5)` is 5.
- `Math.pow(2, 3)` is 8.0 (a double, since it computes 2^3).
- `Math.sqrt(9)` is 3.0.

Method — Random values

`Math.random()` returns a double in the range $[0, 1)$. To get a random int from 1 to 6:

```
k+ktint+w nroll+w o+=w p(k+ktintp)p(nMathp.n+narandomp(p)+w o*+w l+m+mi6p)-
```

Practice 2.1 ■ 1 mark

State the value of `Math.abs(-7)`.

Solution 2.1

Worked steps

7 **B1**.

Practice 2.2 ■ 2 marks

State the value **and type** of `Math.pow(3, 2)`.

Solution 2.2

Worked steps

9.0, a double **M1** **A1**.

Practice 2.3 ■ 1 mark

State the range of values `Math.random()` can return.

Solution 2.3

Method: Random values

Worked steps

from 0 up to (but not including) 1 **B1**.

Exam-style 3.1 ■ 1 mark

`Math.sqrt(16)` returns

A 4 (an int)

B 4.0 (a double)

C 8.0

D 256

Solution 3.1

A 4 (an int)

B 4.0 (a double) 

C 8.0

D 256

Worked steps

B.

Exam-style 3.2 ■ 1 mark

`Math.random()` returns a double in the range

A $[0, 1]$

B $[0, 1)$

C $[1, 10]$

D any value at all

Solution 3.2

Method: Random values

A $[0, 1]$

B $[0, 1)$



C $[1, 10]$

D any value at all

Worked steps

B.

Exam-style 3.3 ■ 1 mark

To roll a die: `(int)(Math.random() * 6) + 1`.

- (a) State the smallest possible value.
- (b) State the largest possible value.
- (c) State the value of `Math.pow(5, 0)`.

Solution 3.3

Method: Random values

Worked steps

(a) 1 **B1**. (b) 6 **B1**. (c) 1.0 **B1**.