

Exercise walk-through

1.10

Calling Class Methods

AP Computer Science A

Methods, the API & the Math class

A **method** is named, reusable code. Its **signature** is its name, parameters & return type.

API & libraries

documentation of ready-made classes to reuse

Math class

`Math.sqrt(9)`, `Math.pow`,
`Math.random()`

A **comment** (`// ...`) documents code for humans; the compiler ignores it.

Class methods, instance methods, and where code comes from

class (static) method

belongs to the **class itself**, so you call it on the class name:
`Math.abs(x)`. **No object needed**

instance method

belongs to an **object**, so you call it on a reference:
`s.length()`

a library

pre-written classes you can use; Java's is the **API**

compiled

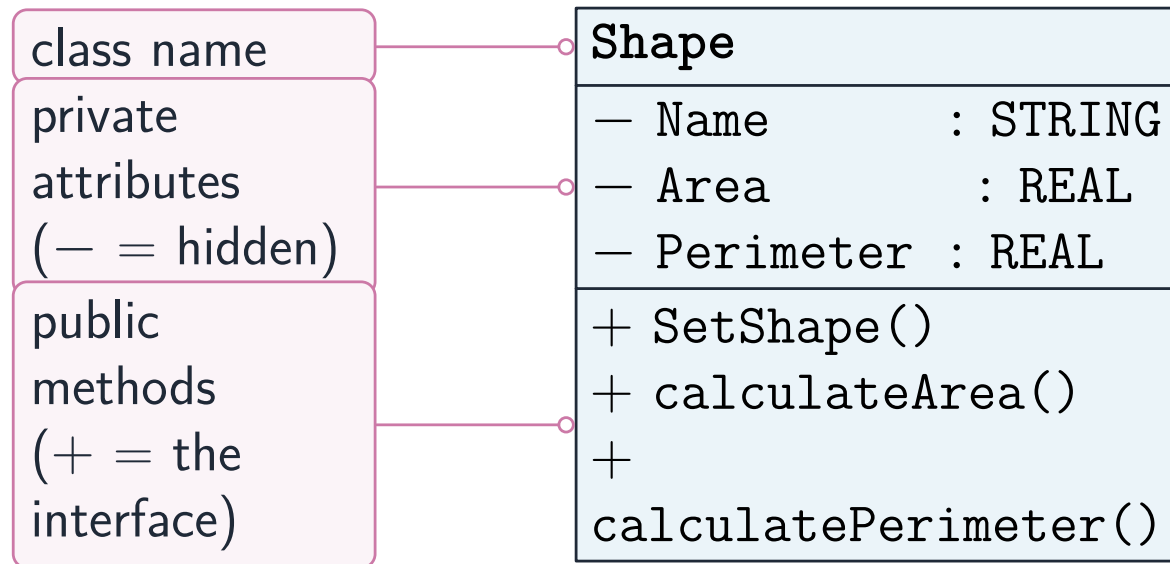
Java source is compiled once to bytecode, then run – so syntax errors surface **before** the program starts

abstraction

using a method by its name and contract, without knowing how it works inside

If you find yourself creating an object just to call a method on it, check whether the method is static – `Math.sqrt` on a new `Math()` does not compile.

Methods, the API & the Math class, in detail



A class diagram: private attributes and public methods

Exercises 2.1-2.3

2.1 State how you call a **static** (class) method.

[1]

2.2 State the difference between a value-returning method and a **void** method.

[2]

2.3 State the value of `Math.max(3, 8)`.

[1]

Exercises 2.1-2.3

2.1 State how you call a **static** (class) method.

[1]

2.1

- with `ClassName.methodName(arguments)`

2.2 State the difference between a value-returning method and a **void** method.

[2]

2.2

- a value-returning method hands back a value the caller can use; a **void** method returns nothing

2.3 State the value of `Math.max(3, 8)`.

[1]

2.3

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Exercises 3.1-3.2

3.1 A class (static) method is called using

[1]

☐

A `object.method()`

B `ClassName.method()`

C `new Class()`

D just the method name

3.2 A void method

[1]

☐

A returns a number

B returns nothing

C must be non-static

D always causes an error

Exercises 3.1-3.2

3.1 A class (static) method is called using

[1]

- ☐ A `object.method()`
B `ClassName.method()`
C `new Class()`
D just the method name

3.1 B

- `ClassName.method()`.

3.2 A void method

[1]

- ☐ A returns a number
B returns nothing
C must be non-static
D always causes an error

3.2 B

- returns nothing.

Exercise 3.3 (a)

3.3 The call `Math.min(10, 4)` is used.

(a) State its return value.

[1]

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(a) State its return value.

[1]

(a)

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Exercise 3.3 (b)

3.3 The call `Math.min(10, 4)` is used.

(b) State the general syntax for calling a static method.

[1]

Exercise 3.3 (b)

3.3 The call `Math.min(10, 4)` is used.

(b) State the general syntax for calling a static method.

[1]

(b)

- `ClassName.methodName(arguments)`

Exercise 3.3 (c)

3.3 The call `Math.min(10, 4)` is used.

(c) State the value of `x` after `int x = Math.min(10, 4) + 1;`.

[1]

Exercise 3.3 (c)

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[1]

(c)

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