## **Mathematical functions**

Python's math library includes a lot of useful functions. We will look at libraries in more detail later. Here is how to use it:

```
> import math
>>> math.pi
3.141592653589793
>>> dir(math)
'__doc__', '__loader__', '__name__', '__package__', '__spec__', 'acos',
'acosh', 'asin', 'asinh', 'atan', 'atan2', 'atanh', 'ceil', 'comb', 'copysign',
'cos', 'cosh', 'degrees', 'dist', 'e', 'erf', 'erfc', 'exp', 'expml', 'fabs', 'factorial', 'floor', 'fmod', 'frexp', 'fsum', 'gamma', 'gcd', 'hypot', 'inf',
'isclose', 'isfinite', 'isinf', 'isnan', 'isqrt', 'lcm', 'ldexp', 'lgamma',
log', 'log10', 'log1p', 'log2', 'modf', 'nan', 'nextafter', 'perm', 'pi',
'pow', 'prod', 'radians', 'remainder', 'sin', 'sinh', 'sqrt', 'tan', 'tanh',
'tau', 'trunc', 'ulp']
>>> math.log(10)
2.302585092994046
>>> help(math.log)
log(...)
    log(x, [base=math.e])
    Return the logarithm of x to the given base.
    If the base not specified, returns the natural logarithm (base e) of x.
```

Before you can use a library, you need to import it. For instance, 'import math'. We will discuss importing later. Here we've used the pi attribute and the dir and log functions just to show you how but more on this in the next section.

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