

## Exercise 1

Write down a suitable sentence describing each of the following functions. Give the domain and range of each function. (The domain is the set of all possible values of  $x$  and the range is the set of all possible values of  $y$ .)

1.  $f(x) = 2x + 1$

2.  $g(x) = x^2$

3.  $h(x) = \frac{1}{x}$

4.  $k(x) = \sqrt{x}$

5.  $l(x) = \sin x$

6.  $m(x) = \frac{1}{x^2}$

7.  $n(x) = \cos x$

8.  $o(x) = \frac{1}{x^3}$

9.  $p(x) = e^x$

10.  $q(x) = \ln x$

11.  $r(x) = 2^x$

12.  $s(x) = \log_2 x$

13.  $t(x) = \frac{1}{x^2} + \frac{1}{x}$

14.  $u(x) = \frac{1}{x^2}$

15.  $v(x) = \frac{1}{x}$

16.  $w(x) = \frac{1}{x^2} + \frac{1}{x}$

17.  $x(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3}$

18.  $y(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3} + \frac{1}{x^4}$

19.  $z(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3} + \frac{1}{x^4} + \frac{1}{x^5}$

20.  $aa(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3} + \frac{1}{x^4} + \frac{1}{x^5} + \frac{1}{x^6}$

21.  $bb(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3} + \frac{1}{x^4} + \frac{1}{x^5} + \frac{1}{x^6} + \frac{1}{x^7}$

22.  $cc(x) = \frac{1}{x^2} + \frac{1}{x} + \frac{1}{x^3} + \frac{1}{x^4} + \frac{1}{x^5} + \frac{1}{x^6} + \frac{1}{x^7} + \frac{1}{x^8}$

23.  $dd(x) = \frac{1}{x^2}$