Question 1 (1 mark) ..... **__ / 1**

$1 + 1$ is:

A. 1

B. 2

C. 0

Question 2 (7 marks) ..... **__ / 7**

Let $g\colon \mathbb{R}\backslash\{2\} \to \mathbb{R},\ g(x) = \dfrac{4}{(x-2)^2} - 1$

a) What is $g(x)$ if:

i) $g(x) = 0$ __ / 1

ii) $g'(x) = 0$ __ / 2

b) Is g bijective? __ / 1

A. Yes

B. No

c) Here's a free mark for using LaTeX! __ / 1

d) What is the range of g? __ / 2

A. $\mathbb{R}\backslash\{2\}$

B. $\mathbb{R}$

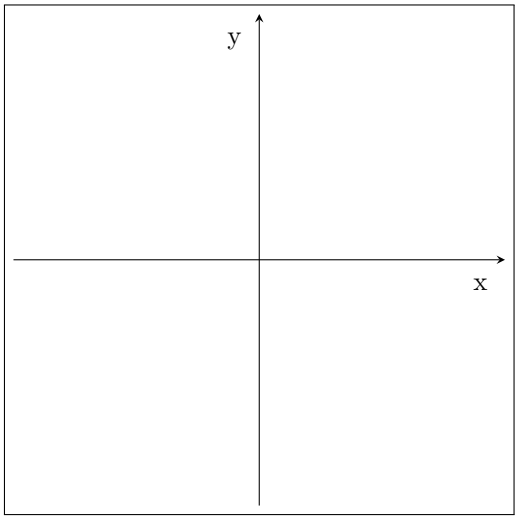
C. $\varnothing$

D. $\{1, 2, 3, 4, 5\}$

E. $\{x\colon\ -1 < x,\ x \in \mathbb{R}\}$

Question 3 (1 mark) ..... **__ / 1**

Sketch the graph of: $y = e^x$



Question 4 (10 marks) ..... / 10

An ant is walking along a continuously *stretching* piece of elastic at a speed of $\log_e 1$ cm/s. The elastic starts out at a length of $\log_{e-1} 1$ cm, and is *stretched* such that its length increases at a constant rate of $\log_{e-1} 1$ cm/s. How long does it take for the ant to reach the end of the elastic?