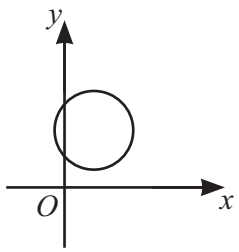
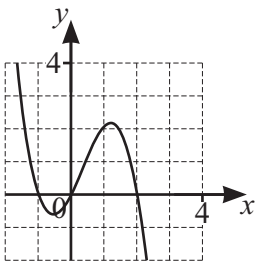
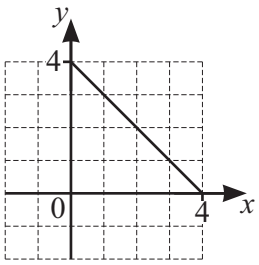
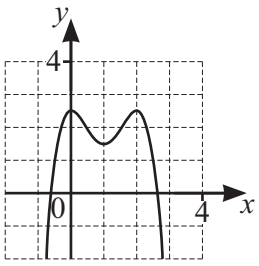
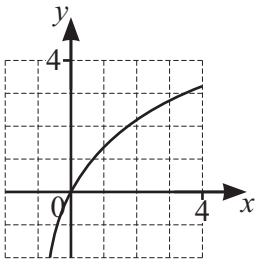
4 (a)



Explain why this graph does **not** represent a function. [1]

(b) The table shows the graphs of four different functions.

	is one-one	is many-one	is its own inverse
			
			
			
			

Tick (✓) each correct box in the table.
There may be more than one tick in a row or a column. [4]

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(c) Functions f and g are defined as follows.

$\text{f}: x \mapsto \sin x$ for $30° \leqslant x \leqslant a°$

$\text{g}: x \mapsto \sqrt{x - \frac{1}{2}}$ for $x \geqslant \frac{1}{2}$

It is given that the function gf exists.

(i) Find the value of a so that the domain of gf is as large as possible.

You may use the information that $\sin 30° = \frac{1}{2}$. [2]

(ii) For the domain found in **part (i)**, find the range of the function gf. [2]

(iii) Determine whether the function g^2 exists. [1]

5 **(a)** In an arithmetic progression:

- the first term is 3
- the sum of the first 10 terms is 4 times the sum of the first 5 terms.

Find the common difference. [3]

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