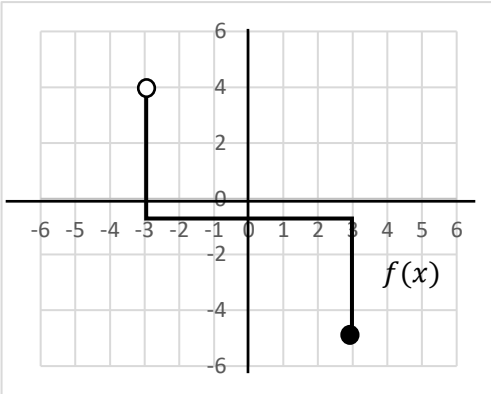
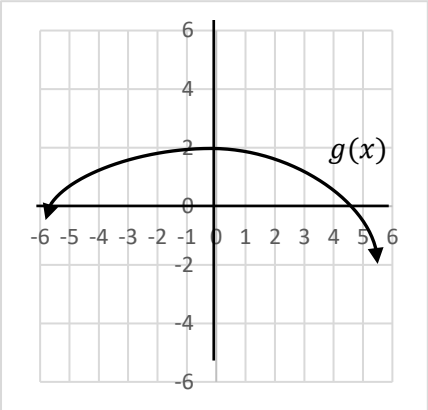
Functions Practice Test

1. For the following graphs
   i. State the **domain** and **range** and the ***equations*** of any asymptotes.
   ii. Note whether the graph shows a ***function*** or ***relation.***

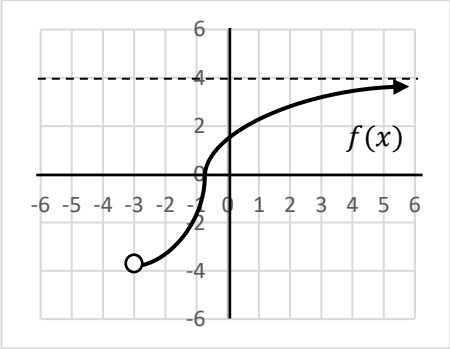
a)



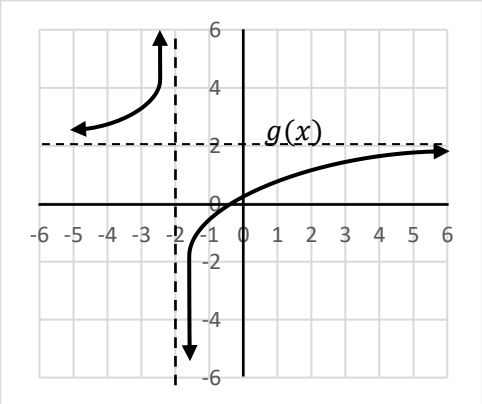
b)



c)



iii. Below is the graph of $g(x)$. State the equations of the asymptotes and the domain and range.



2. Given that $f(x) = 3x + 2$ and $g(x) = 2x^2 - 4$, solve the following:

a) $f(2)$

b) $g(3)$

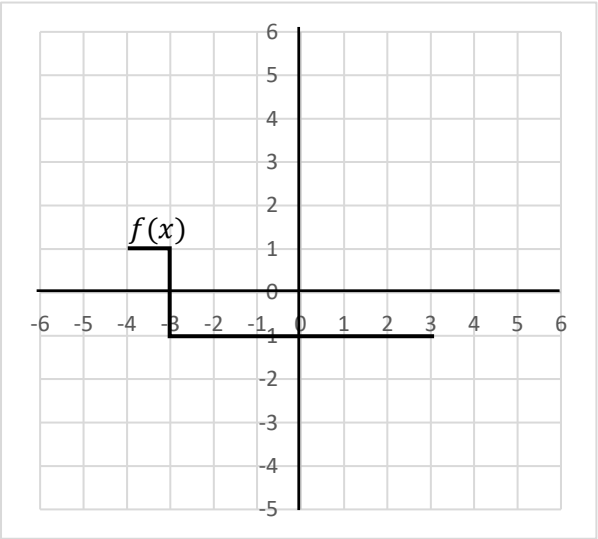
c) $f(-3)$

d) $f(x) = 17$

e) $f^{-1}(11)$

f) $g(x) = 46$

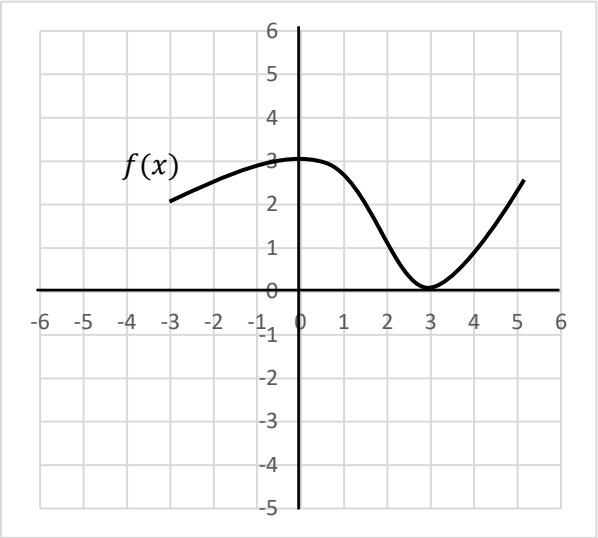
3. Consider the following, $f(x)$



a) Find the value of $f(2)$

b) State why it is impossible to determine the value of $f(-3)$

4. Consider the following function, $f(x)$



a) Find the value of the following:

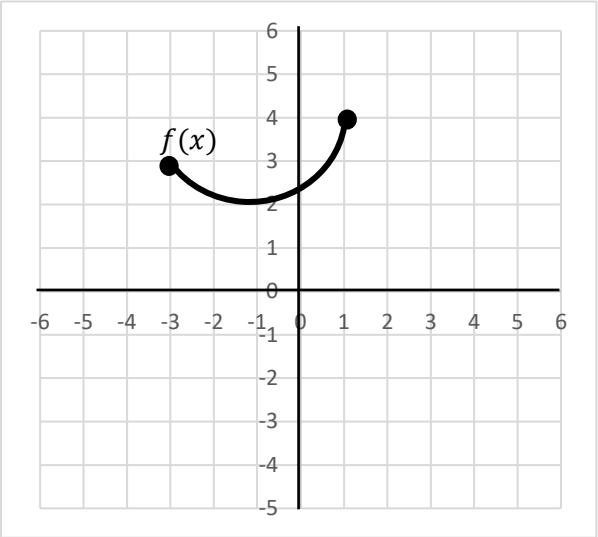
i. $f(4)$

ii. $f^{-1}(2)$

b) Sketch $f^{-1}(x)$ on the same axis

c) State the range of $f^{-1}(x)$

5. Consider the following function, $f(x)$



a) Justify why this is a function and not a relation.

b) State the value of $f(1)$

c) Draw and label the inverse function on the graph, $f^{-1}(x)$

d) State the domain and range for $f(x)$ and , $f^{-1}(x)$. What do you notice?

6. Given that $g(x) = x^2 - 4x + 4$, where $-4 \leq x \leq 4$, use your GDC to make a detailed sketch, labelling all key points:

7. $f(x) = \frac{1}{x-3} - 4$, where $-5 \leq x \leq 8$

Make a detailed sketch, labelling all key points and stating the equation of the asymptotes.