GRADED MATHEMATICS

High School Mathematics Department

Summative Assessment

Time allowed: 60 minutes

Name: _____

Class: Grade 10 Std

Unit: Functions

Learning Targets:

- I understand that functions are rules connecting two sets of numbers and can be represented in several different ways
- I understand how to find and use composite and inverse functions
- I understand identify domains, ranges and asymptotes on a graph
- I can use my GDC to find roots, y intercepts, maximum and minimum points and intersections
- I can use my GDC to solve equations of any kind by drawing graphs

Instructions:

- Answer all questions in the space provided, showing all working where required.
- Calculators **are** permitted.

Grading:

	Student Assessment	Teacher Assessment
Content		
Communication		

Overall Grade	

DETERMINATION OF ACHIEVEMENT LEVEL:

The grade earned upon this summative assessment will be determined by the student's demonstration of learning across the range of learning targets being assessed. Total points received are not necessarily indicative of level of achievement, but rather a holistic judgment that locates a student's demonstrated knowledge and understanding, application of skills and concepts, and effectiveness of communication in relation to the descriptors identified in the table below.

High School Mathematics Grading Scale and Descriptors of Achievement

	Communication	Skills and Applications	Knowledge and Understanding
Exemplary	The student communicates in a **coherent, well-organised and concise** manner, with **consistently accurate** use of notation and terminology.	The student demonstrates a **sophisticated** application of skills in both **familiar and unfamiliar** contexts.	The student demonstrates an **extensive** knowledge and **comprehensive** understanding of the syllabus.
Accomplished	The student communicates in a **coherent and well-organised** manner, with **consistently accurate** use of notation and terminology.	The student demonstrates an **effective** application of skills in **familiar and some unfamiliar** contexts.	The student demonstrates a **broad** knowledge and **comprehensive** understanding of the syllabus.
Proficient	The student communicates in a **coherent and organised** manner, with **mostly accurate** use of notation and terminology.	The student demonstrates a **competent** application of skills in **familiar** contexts.	The student demonstrates a **broad** knowledge and **good** understanding of the syllabus.
Progressing	The student communicates in an **organised** manner, with **some accurate** use of notation and terminology.	The student demonstrates an **adequate** application of skills in **familiar** contexts.	The student demonstrates a **satisfactory** knowledge and understanding of the syllabus, and is able to solve **routine** problems.
Adequate	The student communicates in an **organised** manner, with **some accurate** use of notation **and/or** terminology.	The student demonstrates **some** application of skills in **routine, familiar** contexts.	The student demonstrates **partial** knowledge and understanding of the syllabus, and is able to solve **some routine** problems.
Emerging	The student communicates **with some organisation**, with **some attempt at using** mathematical notation **and/or** terminology.	The student **occasionally applies skills** in routine contexts.	The student demonstrates **limited** knowledge and understanding of the syllabus, and is able to solve **basic** problems.
Insufficient	The student's attempts at mathematical communication are **ineffective**.	The student demonstrates **minimal to no** application of skills.	The student demonstrates **minimal to no** knowledge and understanding of the syllabus.

1. is defined as:

a) Find

Answer.....

b) Find if

Answer.....

2. is defined as

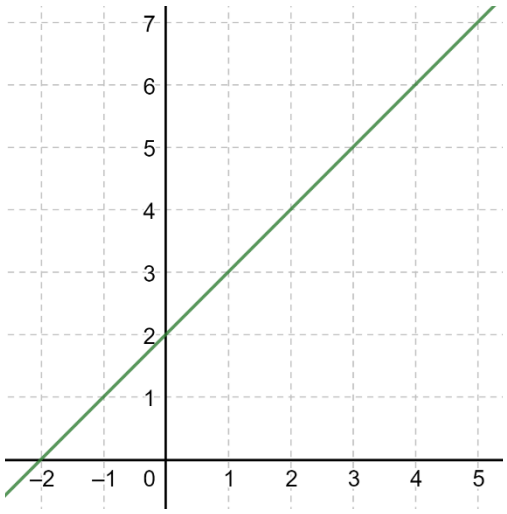
If , find the value of

Answer.....

3. The function is represented by both a table of values and a graph.

Some of the numbers in the table are missing.

-2	
-1	
	3
	6
8	



a) Complete the above table.

b) Write down the function g(x) using algebra.

Answer.....

4. You are given that and

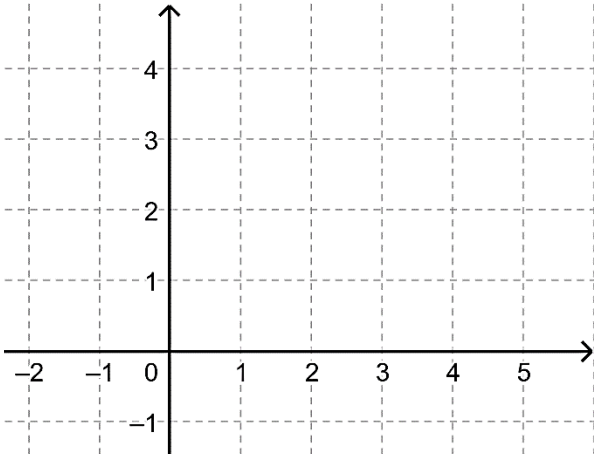
a) Find

Answer.....

b) By using the table function on your calculator, complete the table below:

-2	error
-1	0
-0	
1	1.41
2	
3	2
4	

c) Plot the graph of on the axes below:



d) Write the domain of

Answer.....

e) Write the range of

Answer.....

5. You are given that

a) Find

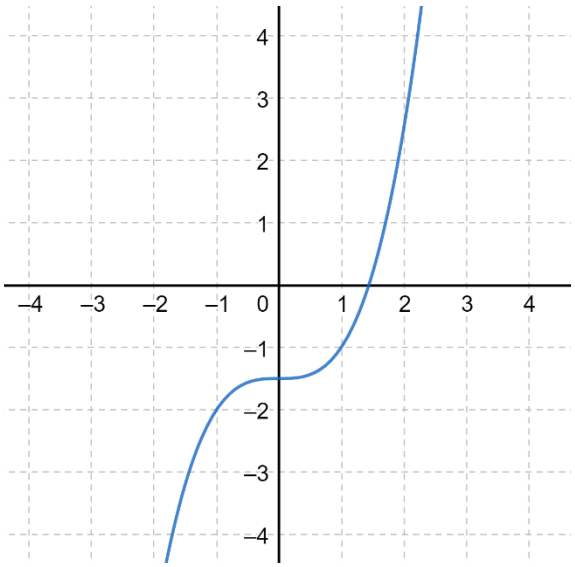
Answer.....

b) Find the value of

Answer.....

On the graph below is the graph of :

c) On the same axes, draw the graph of



d) The point is on the graph of

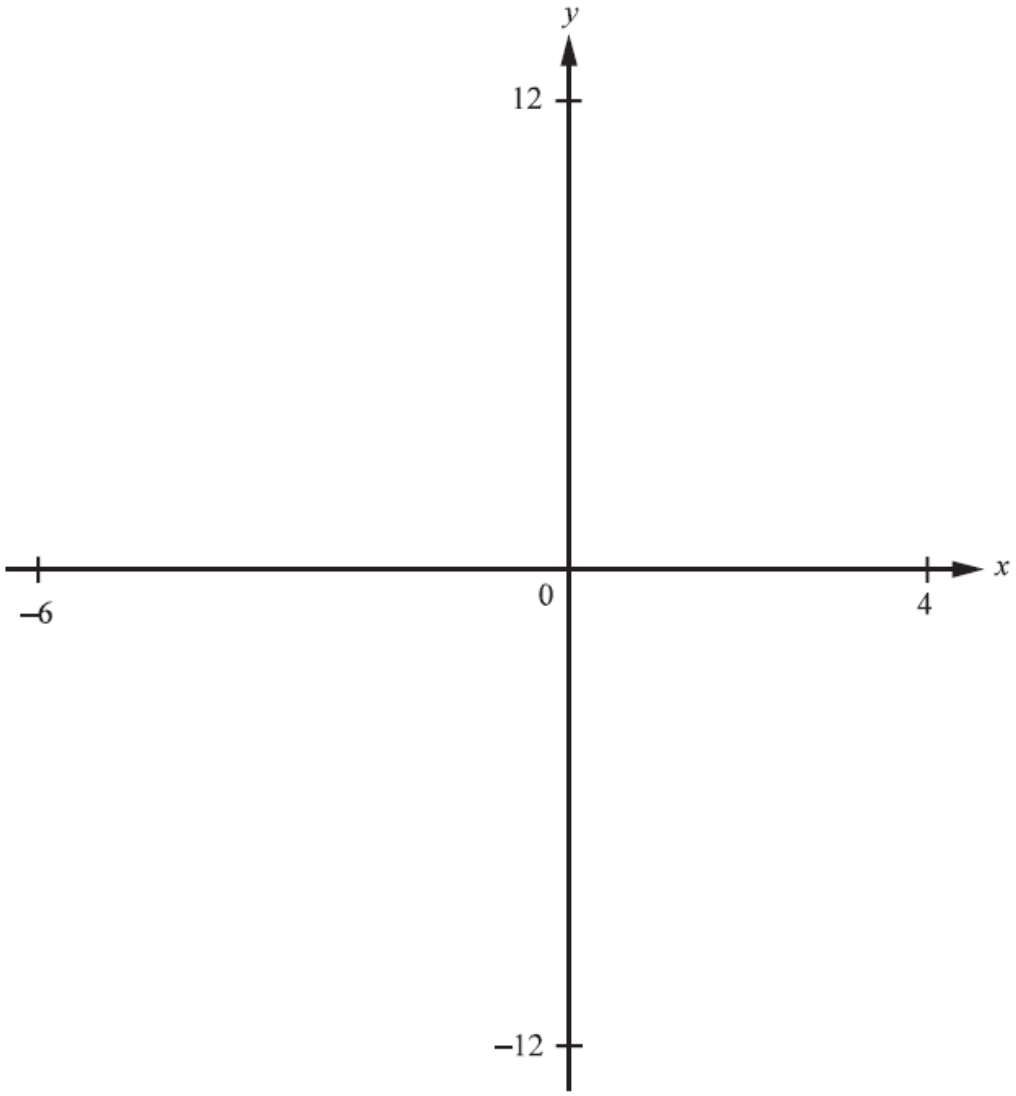
What is the equivalent point on the graph of ?

Answer.....

e) Describe precisely the transformation that transforms the graph of into the graph of

Answer.....

6.



a) On the axes above, draw the graph of , where

b) Write down the domain of

Answer.....

c) Solve the equation

Answer.....

d) Solve the equation

Answers.....

7. The diagram shows a sketch of the graph , where

a) On the graph there are three asymptotes. Write down the equations of each of them:

Answers.....

b) Find

Answer.....

c) Find the co-ordinates of the local maximum point.

Answer.....

d) Find the coordinates of the local minimum point.

Answer.....

e) **How many** solutions are there to the equation ?

Answer.....

f) Find the values of for which has no solutions

Answer.....