

**Mathematics Methods  
YEAR 11**

**Investigation 2 – Transformations of Functions**

**Semester 1 2015**

**Time allowed:** 1 week (Validation 1 May 2015)

**Marks Available:** 50 marks in Validation Test

**Materials required:** Writing implements, correction fluid/tape or eraser, ruler, Scientific or CAS calculator

**Instructions:**

1. Write your answers in the spaces provided in this Question/Answer Booklet.
2. There are no marks allocated to this take home section. The contents of this paper will be assessed in a validation test.

1. The graph below shows the graphs of  ,  ,  and .



A is ...............................

B is ..............................

C is ..............................

D is .............................

1. Use your graphic calculator to identify each of the graphs above.
2. Describe the effect on the original graph when the equation undergoes a transformationand:
3. ‘a’ is negative ....................................................................................................................

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1. a constant, ‘c’, is added or subtracted to the original, eg 

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1. a constant, ‘b’, is added or subtracted in brackets eg 

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1. Draw the graphs E:  and F: onto the same axes and hence describe the effect of factor a.

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1. Graph A below is the graph of . Complete graphs B, C and D where:

***Include all asymptotes***



1. Graph B is  b. Graph C is  c. Graph D is

Graph A Graph B



Graph C Graph D



1. Describe the transformation of  to 

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1. Draw the graph , with its asymptotes.



1. Graph A below is a graph of . Complete graphs B, C and D where:
2. Graph B is  b. Graph C is  c. Graph D is

Graph A Graph B



Graph C Graph D



1. Investigate the effect of reversing inside the square root sign.

Draw the graphs and  and write your conclusions below.



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1. Graph A below is a graph of. Draw on the same set of axes:
2. Graph B:  b. Graph C: 



1. If the graph of  is moved 2 units to the right, state the equation of the transformed graph.

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1. On the diagram below, draw graphs of  and 



1. the effect of the negative sign in the front and in the power.

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1. The graph of  is shown below (Graph A). Using your knowledge of transformations to

state the equations of Graphs B, C and D. (Assume that all graphs are congruent).

Graph A Graph B

 

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Graph C Graph D

 

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1. Write the equations of the following transformations and then draw their graphs on the axes below:
2.  is translated 3 units to the left and 5 units down

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1.  is dilated by a factor of ½ in the y-direction and reflected in the x-axis

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1. Describe in words the following transformations:

a.  

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1.  

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c.  

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d. 



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e.  

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1. The following is a graph of . Graph on the following set of axes:

a.  b. 



c.  d. 



e. 



**End of Take Home Section**