# Practice Test – Unit 2 - Functions

**1a.** *[4 marks]*

Let  ,  .

Find  .

**1b.** *[7 marks]*

(i) Sketch the graph of *h* for  and  , including any asymptotes.

(ii) Write down the equations of the asymptotes.

(iii) Write down the *x*-intercept of the graph of *h* .

**2a.** *[3 marks]*

Let  , for  .

Find  .

**2b.** *[3 marks]*

Let  be a function such that  exists for all real numbers. Given that  , find  .

**3a.** *[3 marks]*

Let  and  .

Find  .

**3b.** *[3 marks]*

Find 

**4a.** *[1 mark]*

The diagram below shows the graph of a function  , for  .



Write down the value of .

**4b.** *[2 marks]*

Write down the value of  .

**4c.** *[3 marks]*

Sketch the graph of  below.

**5a.** *[2 marks]*

Let , where .

Write down the equations of the vertical and horizontal asymptotes of the graph of .

**5b.** *[2 marks]*

The vertical and horizontal asymptotes to the graph of  intersect at the point .

Find the value of .

**6a.** *[2 marks]*

Let  and , for .

Find .

**6b.** *[2 marks]*

Show that .

**6c.** *[2 marks]*

Let , for . The graph of *h* has a horizontal asymptote at .

Find the -intercept of the graph of .

**7a.** *[2 marks]*

Let  and  .

Find  .