

NAME: \_\_\_\_\_

## ANSWERS

### Quiz 2

Calculators are not allowed. Write your answers on the dashed lines.

[20] Question 1: What are the domains of these functions?

[10] •  $f(x) = \frac{1-x}{x}$ : ANSWER: all  $x$  except 0,  $\mathbb{R} - \{0\}$ ,  $(-\infty, 0) \cup (0, +\infty)$  ok

[10] •  $g(x) = \sqrt{x+4}$ : ANSWER:  $x \geq -4$ ,  $[-4, +\infty)$  ok

Partial credit  
-3 if interval bound are incorrect  
[ vs (

[30] Question 2: If  $f(x) = 4 - 3x$  what are:

[5] •  $f(1/3) =$   $4 - 3 \cdot \frac{1}{3} = 4 - 1 = 3$

[5] •  $f(1/x) =$   $4 - \frac{3}{x}$

[5] •  $f(x^2) =$   $4 - 3x^2$

[5] •  $f(-x) =$   $4 - 3(-x) = 4 + 3x$

[5] •  $-f(x) =$   $-(4 - 3x) = -4 + 3x$

[5] •  $f(x+a) =$   $4 - 3(x+a) = 4 - 3x - 3a$

Partial Credit

(-2 for each algebra error in simplifying)

[30] Question 3: If  $g(x) = \frac{4x-6}{x-4}$ , what is the solution to  $g(x) = 14$ ?

$$\frac{4x-6}{x-4} = 14 \Rightarrow 4x-6 = 14(x-4)$$

$$\Rightarrow 4x-6 = 14x-56$$

$$\Rightarrow 4x-14x = 6-56$$

$$\Rightarrow -10x = -50$$

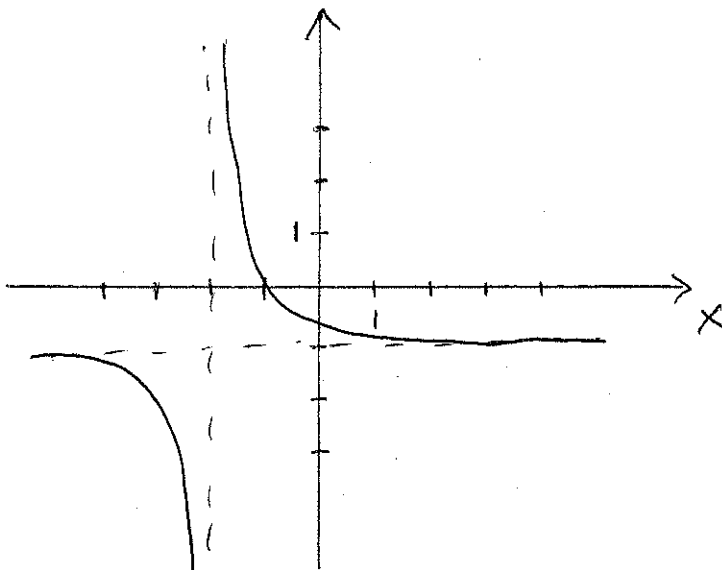
$$\Rightarrow \boxed{x=5}$$

Partial Credit

(-10) for each algebra error.

[10] Question 4: Graph the function  $f(x) = \frac{1}{x+2} - 1$  on the following graph.

$\frac{1}{x}$  graph shifted  
down 1 and left 2



Partial credit

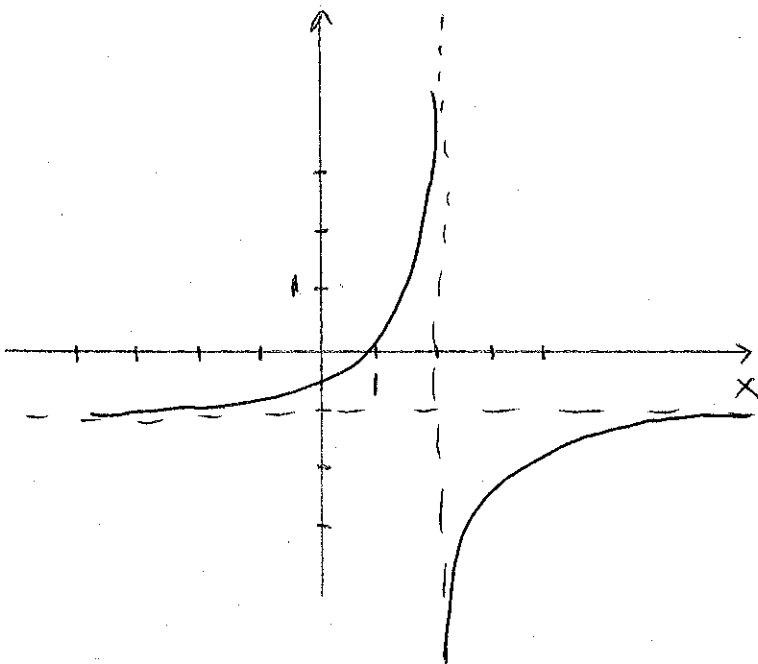
5 pts for correct  
" $\frac{1}{x}$ " shape

5 pts for correct  
asymptotes (i.e.  
correct position)

[10] Question 5: How would you deduce the graph of the function  $g(x) = \frac{1}{-x+2} - 1$  from that of  $f(x)$  above?

[5] Reflection wrt the y-axis

[5] Graph  $g(x)$  on the following graph:



Partial credit

3 pts for correct  
" $-\frac{1}{x}$ " shape,

2 pts for correct  
position