



SCAN ME

# Functions and Equations



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← REVISE THIS TOPIC

→ CHECK YOUR ANSWERS

1  $f(x) = 2x - 9$        $g(x) = 7x + 1$

(a) Solve  $fg(x) = 35$

(b) Solve  $f^{-1}(x) + g^{-1}(x) = 5$

.....  
(3)

.....  
(4)

(Total for Question 1 is 7 marks)



2  $f(x) = \frac{8}{x}$                        $g(x) = x - 3$                        $h(x) = x^2$

(a) Solve  $f(x) + g(x) = 3$

(b) Solve  $h(x) = g(4x)$

(c)  $h^{-1}(100) + g^{-1}(3) = f(k)$  where  $k$  is a constant.  
Work out the value of  $k$ .

.....  
(3)

.....  
(3)

$k =$ .....  
(4)

**(Total for Question 2 is 10 marks)**



3  $f(x) = \frac{36}{x^2}$                        $g(x) = \sin(x)$                        $h(x) = 3x$

(a) Show that  $f^{-1}(3) \times g(60)$  is an integer.

(b) Solve  $hf(x) - fh(x) = 26$

(4)

.....  
(4)

**(Total for Question 3 is 8 marks)**



4  $f(x) = \frac{36}{x^2}$                        $g(x) = \sin(x)$                        $h(x) = 3x$

(a) Show that  $fg(x) - fh(x) = 2g(x) + 2h(x)$

(b) Solve  $gf^{-1}(x) = 9$  (5)

.....  
(3)  
**(Total for Question 4 is 8 marks)**



5  $f(x) = x^2$

$$g(x) = \frac{x + 8}{11}$$

$$h(x) = ax + b$$

(a) Solve  $f(x + 2) = g^{-1}(x)$

.....  
(4)

$$h(3) = 7$$

$$h^{-1}(55) = 15$$

(b) Work out the values of  $a$  and  $b$ .

$$a = .....$$

$$b = .....$$

(5)

**(Total for Question 5 is 9 marks)**

