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

1 (a)   Solve $fg(x) = 35$ **[3 marks]**

Answer

1 (b)   Solve $f^{-1}(x) + g^{-1}(x) = 5$ **[4 marks]**

Answer

7

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

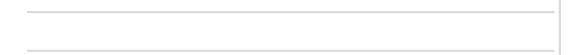**2 (a)**   Solve $f(x) + g(x) = 3$ **[3 marks]**

Answer _____

2 (b)   Solve $h(x) = g(4x)$ **[3 marks]**

Answer _____

2 (c) $h^{-1}(100) + g^{-1}(3) = f(k)$ where k is a constant.   **[4 marks]**
Work out the value of k

$k =$ _____

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

3 (a)   Show that $f^{-1}(3) \times g(60)$ is an integer   **[4 marks]**

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3 (b)   Solve $hf(x) - fh(x) = 26$ **[4 marks]**

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Answer _____

18

Turn over ▶

4 $f(x) = x^2$ $g(x) = x + 4$ $h(x) = x + 2$

4 (a)   Show that $fg(x) - fh(x) = 2g(x) + 2h(x)$ **[5 marks]**

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4 (b)   Solve $gf^{-1}(x) = 9$ **[3 marks]**

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Answer _____

5 $f(x) = x^2$ $g(x) = \dfrac{x + 8}{11}$ $h(x) = ax + b$ where a and b are integers.

5 **(a)**   Solve $f(x + 2) = g^{-1}(x)$ **[4 marks]**

Answer _____

5 **(b)** $h(3) = 7$
           $h^{-1}(55) = 15$
           Work out the values of a and b.   **[5 marks]**

$a =$ _____ $b =$ _____

$\dfrac{}{17}$