QT Compound & Inverse Functions

1. Given that $f(x) = x + 9$

(a) Find $f(6)$ (1 mark)

(b) Find $f(-2)$ (1 mark)

(c) Solve $f(x) = 12$ (2 marks)

2. Given that $f(x) = 3x + 2$

(a) Find $f(3)$ (1 mark)

(b) Find $f(-4)$ (1 mark)

(c) Solve $f(x) = 14$ (2 marks)

QT Compound & Inverse Functions

3. Given that $f(x) = 3x^2 + 4$

(a) Find $f(3)$ (2 marks)

(b) Find $f(-3)$ (2 marks)

(c) Solve $f(x) = 16$ (2 marks)

4. Given that $g(x) = x^2 + 5$

(a) Find $g(8)$ (1 mark)

(b) Find $g(-6)$ (1 mark)

(c) Work out the expression for $g^{-1}(x)$ (2 marks)

(d) Find $g^{-1}(x) = 4$ (2 marks)

QT Compound & Inverse Functions

5. Given that $f(x) = 3x + 2$ and $g(x) = 2x - 6$

(a) Find $gf(3)$ (2 marks)

(b) Solve $f(x) = g(x)$ (2 marks)

6. Given that $f(x) = 2x - 2$ and $g(x) = x + 3$

(a) Work out the expression for $f^{-1}(x)$ (2 marks)

(b) Work out the expression for $g^{-1}(x)$ (2 marks)

(c) Solve $f^{-1}(x) = g^{-1}(x)$ (2 marks)

QT Compound & Inverse Functions

7. Given the function $f(x) = -5 - 9x$, find the value of $f^{-1}f(8)$ (3 marks)

8. A function f is defined such that $f(x) = \frac{x}{x-2}$

(a) Solve the equation $f(x) = \frac{5}{2}$ (2 marks)

(b) Find $f^{-1}(x)$