Inverse and Composite Functions Mark Scheme		
1(a)	$f^{-1}(x) = x + 9$	[1]
1(b)	13	[1]
2(a)	$f^{-1}(x) = \frac{x+3}{5}$	[1]
2(b)	$\frac{6}{5}$	[1]
3(a)	$f^{-1}(x) = 3x + 8$	[1]
3(b)	$f^{-1}(10) = 38$	[1]
4(a)	$f^{-1}(x) = 2 - 4x^2$	[1] $4x^2$ term is given
	$f^{-1}(x) = 2 - 4x^2$	[1] Final answer
4(b)	$f^{-1}(3) = 2 - 4(3)^2$	[1] Correct substitution
	$f^{-1}(3) = -34$	[1] Final answer
5(a)	$x = 3$	[1] write $2x + 4 = 3x + 1$ and attempt to solve by balancing sides $\text{i.e.}\ 4 = x + 1$,
5(b)	$fg(x)$: $2(3x + 1) + 4$	[1] Correct substitution
	$6x + 2 + 4$ $6x + 6$	[1] Simplifying to correct answer
5(c)	$gf(x)$: $3(2x + 4) + 1$	[1] Correct substitution
	$6x + 13$	[1] Simplifying to correct answer
6(a)	$f^{-1}(x) = \frac{5}{x} + 1$ so $f^{-1}(-2) = -1.5$	[1] correct f^{-1} (-2) value
	$ff^{-1}(-2) = -2$	[1] Substitution into $f(x)$ for final answer
6(b)	$g(3) = 4 - 2(3) = -2$	[1] Correct substitution
	$gg(3) = 4 - 2(-2) = 8$	[1] Correct substitution and final answer
6(c)	$fg(x) = \frac{5}{(4 - 2x) - 1}$	[1] Apply $fg(x)$ in correct order
	$fg(x) = \frac{5}{3 - 2x}$	[1] Simplifying to correct answer
7(a)	$fg(x) = (x + b)^2 - a$	[1] Apply $fg(x)$ in correct order
	$fg(x) = (x + b)^2 - a$	[1] Can leave as $(x + b)^2 - a$ or expand to get $x^2 + b^2 + 2xb - a$
7(b)	$fg(5) = (5 - 6)^2 + 3$	[1] Correct substitution
	4	[1] Final answer

END