

Question 3

(25 marks)

- (a) $f(x) = 6x - 5$ and $g(x) = \frac{x+5}{6}$. Investigate if $f(g(x)) = g(f(x))$.

$f(g(x))$	$g(f(x))$
Conclusion:	

- (b) The real variables y and x are related by $y = 5x^2$.
- (i) The equation $y = 5x^2$ can be rewritten in the form $\log_5 y = a + b \log_5 x$.
Find the value of a and the value of b .

$a =$	$b =$
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(ii) Hence, or otherwise, find the real values of y for which

$$\log_5 y = 2 + \log_5 \left(\frac{126}{25} x - 1 \right).$$

