

Higher Maths
SQA 2021 Paper 1
Question 6



Functions f and g are defined on \mathbb{R} by

- $f(x) = 2x + 5$
- $g(x) = x^2 - 2x$.

- (a) Find an expression for $f(g(x))$. 2
- (b) Find an expression for $g(f(x))$. 1
- (c) Express $g(f(x)) - f(g(x))$ in the form $a(x+b)^2 + c$. 4
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Answers:

- (a) $2(x^2 - 2x) + 5$
or equivalent
- (b) $(2x + 5)^2 - 2(2x + 5)$
or equivalent
- (c) $2(x + 5)^2 - 40$