

1.4b: TO FIND THE RELATED FUNCTION GIVEN THE COMPOSITE FUNCTION AND ONE OF THE FUNCTIONS (USING SFOOR METHOD)

Question	Suggestion Solution
<p>Q1: $f(x) = 2x + 4$ $gf(x) = 3x + 8$. Find the function g.</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 60%;"> <p>$f(x) = x - 2$ $g(x) = ?$</p> <p>$gf(x) = \frac{1}{11 - 3x}$ [f inside g]</p> <p>$f^{-1}(x) = \frac{x+2}{1} = x+2$</p> <p>$\therefore g(x) = \frac{1}{11 - 3(x+2)}$</p> <p>$\therefore g(x) = \frac{1}{5 - 3x}$</p> </div> <div style="width: 35%; border: 1px solid black; padding: 5px;"> <p>Steps:</p> <ol style="list-style-type: none"> 1 Pakcik saya ingin menjadi ahli keluarga pakcik! 2 Yang, bagaimana? Kalau awak nak, bolehlah masuk melamar anak kami. 3 Baiklah. Nanti saya usahakan. </div> </div>
<p>Q2: $f(x) = 3x + 2$ $fg(x) = \frac{2x+5}{x-2}$. Find the function g.</p>	<p>$f(x) = 3x + 2$ $g(x) = ?$</p> <p>$gf(x) = 9x^2 + 9x + 2$</p> <p>$f^{-1}(x) = \frac{x-2}{3}$</p> <p>$\therefore g(x) = 9\left(\frac{x-2}{3}\right)^2 + 9\left(\frac{x-2}{3}\right) + 2$</p> <p>$= (x-2)^2 + 3(x-2) + 2$</p> <p>$= x^2 - 4x + 4 + 3x - 6 + 2$</p> <p>$= x^2 - x$</p>
<p>Q3: $f(x) = \frac{1}{x}$ $gf(x) = \frac{15}{10x-1}$ Find the function g.</p>	<p>$f(x) = \frac{1}{x}$ $g(x) = ?$</p> <p>$gf(x) = \frac{15}{10x-1}$</p> <p>$f^{-1}(x) = \frac{1}{x}$</p> <p>$\therefore g(x) = \frac{15}{10\left(\frac{1}{x}\right) - 1} = \frac{15}{\frac{10-x}{x}}$</p> <p>$\therefore g(x) = \frac{15x}{10-x}$</p>