

Fill in the Blanks

Composite Two-Step Functions

Question	Input	1 st Function	2 nd Function	Output	Answer
$f(x) = 3x - 1$ $g(x) = x^2 + 5$ Find $fg(x)$	x	square → +5	$\times 3$ → -1	$fg(x)$	$fg(x)$ $= 3(x^2 + 5) - 1$ $= 3x^2 + 14$
$f(x) = 2\sqrt{x}$ $g(x) = 4x - 3$ Find $gf(x)$	x	square root → $\times 2$	$\times 4$ → -3	$gf(x)$	$gf(x)$ $= 4(2\sqrt{x}) - 3$ $= 8\sqrt{x} - 3$
$f(x) = \frac{x}{2} + 1$ $g(x) = 3x^2$ Find $fg(x)$	x	square → $\times 3$	$\div 2$ → +1	$fg(x)$	$fg(x)$ $= \frac{3x^2}{2} + 1$
$g(x) = \frac{1}{x-2}$ $h(x) = 4\sqrt{x}$ Find $hg(x)$	x	-2 → reciprocal	square root → $\times 4$	$hg(x)$	$hg(x)$ $= 4\sqrt{\frac{1}{x-2}}$
$f(x) = 5x^2$ $g(x) = 2x - 1$ Find $fg(x)$	x	$\times 2$ → -1	square → $\times 5$	$fg(x)$	$fg(x)$ $= 5(2x - 1)^2$