Suppose $f(x) = x^2 - 4x + 3$ and $g(x) = 2x - 5$.
Find $f(g(3))$, $g(f(-2))$, $f(g(x))$ and $g(f(x))$.

- Since $g(3) = 1$, $f(g(3)) = f(1) = 0$.
- Since $f(-2) = 15$, $g(f(-2)) = g(15) = 25$.
- $f(g(x)) = f(2x-5) = (2x-5)^2 - 4(2x-5) + 3 = 4x^2 - 28x + 48$
- $g(f(x)) = g(x^2 - 4x + 3) = 2(x^2 - 4x + 3) - 5 = 2x^2 - 8x + 1$