

2.7 1)

$$(g \circ f)(x) = 2x^2 + 2x - 5 \Rightarrow g(f(x)) = 2x^2 + 2x - 5 \Rightarrow$$

$$\Rightarrow 2f(x) - \cancel{5} = 2x^2 + 2x - \cancel{5} \Rightarrow f(x) = \frac{2x^2 + 2x}{2} \Rightarrow \boxed{f(x) = x^2 + x}$$

2.7 2)

$$(g \circ f)(x) = 2x - 3 \Rightarrow g(f(x)) = 2x - 3 \Rightarrow 5f(x) + 1 = 2x - 3 \Rightarrow$$

$$\Rightarrow 5f(x) = 2x - 4 \Rightarrow \boxed{f(x) = \frac{2x - 4}{5}}$$

2.7 3)

$$(g \circ f)(x) = \frac{2x - 3}{x + 1} \Rightarrow g(f(x)) = \frac{2x - 3}{x + 1} \Rightarrow f(x) - 3 = \frac{2x - 3}{x + 1} \Rightarrow$$

$$\Rightarrow f(x) = \frac{2x - 3}{x + 1} + 3 \Rightarrow f(x) = \frac{2x - \cancel{3} + 3x + \cancel{3}}{x + 1} \Rightarrow \boxed{f(x) = \frac{5x}{x + 1}}$$

2.7 4)

$$(g \circ f)(x) = \frac{2x^2 + x - 1}{x - 2} \Rightarrow g(f(x)) = \frac{2x^2 + x - 1}{x - 2} \Rightarrow 2f(x) - 5 = \frac{2x^2 + x - 1}{x - 2} \Rightarrow$$

$$\Rightarrow 2f(x) = \frac{2x^2 + x - 1}{x - 2} + 5 \Rightarrow 2f(x) = \frac{2x^2 + x - 1 + 5x - 10}{x - 2} \Rightarrow \boxed{f(x) = \frac{2x^2 + 6x - 11}{2x - 4}}$$