(a) $f(x) = 2x - 1$

$g(x) = -\frac{1}{3}x + 5$

$(f \circ g)(x) = f(g(x))$

$= f(-\frac{1}{3}x + 5)$

$= 2(-\frac{1}{3}x + 5) - 1$

$= -\frac{2}{3}x + 10 - 1$

$\boxed{(f \circ g)(x) = -\frac{2}{3}x + 9}$

(b) $f(x) = -\frac{3}{7}x + 2$

$g(x) = \frac{1}{2}x + \frac{2}{3}$

$(f \circ g)(x) = f(g(x))$

$= f(\frac{1}{2}x + \frac{2}{3})$

$= -\frac{3}{7}(\frac{1}{2}x + \frac{2}{3}) + 2$

$= -\frac{3}{14}x - \frac{2}{7} + 2$

$\boxed{(f \circ g)(x) = -\frac{3}{14}x + \frac{12}{7}}$

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

$g(x) = \frac{7x + 1}{3x - 4}$

$(f \circ g)(x) = f(g(x))$

$= f\left(\frac{7x+1}{3x-4}\right)$

$= \dfrac{2\left(\frac{7x+1}{3x-4}\right) - 1}{3\left(\frac{7x+1}{3x-4}\right) + 5} \cdot \dfrac{\color{red}{(3x-4)}}{\color{red}{(3x-4)}}$

$= \dfrac{2(7x+1) - (3x-4)}{3(7x+1) + 5(3x-4)}$

$= \dfrac{14x + 2 - 3x + 4}{21x + 3 + 15x - 20}$

$\boxed{(f \circ g)(x) = \dfrac{11x + 6}{36x - 17}}$

(d) $f(x) = 3x + 5$

$g(x) = \frac{1}{x + 2}$

$(f \circ g)(x) = f(g(x))$

$= f\left(\frac{1}{x+2}\right)$

$= 3\left(\frac{1}{x+2}\right) + 5$

$= \frac{3}{x+2} + 5 \cdot \dfrac{\color{red}{(x+2)}}{\color{red}{(x+2)}}$

$= \dfrac{3 + 5(x+2)}{x+2}$

$= \dfrac{3 + 5x + 10}{x+2}$

$\boxed{(f \circ g)(x) = \dfrac{5x + 13}{x+2}}$