4. $f(x) = \dfrac{x-1}{-2x+3}$ $x_0 = -1$

$f(x) = \dfrac{u}{v}$ $u = x - 1$ $u' = 1$

$v = -2x + 3$ $v' = -2$

$f'(x) = \dfrac{u'v - uv'}{v^2} = \dfrac{1(-2x+3) - (x-1)(-2)}{(-2x+3)^2} =$

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

$= \dfrac{-\cancel{2}x + 3 + \cancel{2}x - 2}{(-2x+3)^2} = \dfrac{1}{(-2x+3)^2}$

$f(x_0) = f(-1) = \dfrac{-1 - 1}{-2 \times (-1) + 3} = \dfrac{-2}{2+3} = -\dfrac{2}{5}$

$f'(x_0) = f'(-1) = \dfrac{1}{(2 \times (-1) + 3)^2} = \dfrac{1}{25}$

$y = f'(x_0)(x - x_0) + f(x_0)$

Donc $y = \dfrac{1}{25}(x - (-1)) - \dfrac{2}{5} = \dfrac{1}{25}(x+1) - \dfrac{2}{5} =$

$= \dfrac{1}{25}x + \dfrac{1}{25} - \dfrac{2}{5} = \dfrac{1}{25}x - \dfrac{9}{25}$

$y = \dfrac{1}{25}x - \dfrac{9}{25}$