9. $g(x) = \underbrace{(x^2-5x+2)}_{P}\underbrace{(x^3-4)}_{Q}$ AT $\overset{x}{1}, \overset{y}{6}$

① FIND DERIVATIVE

$P' = 2x-5 \quad Q' = 3x^2$

$P'Q + PQ'$

$g'(x) = (2x-5)(x^3-4) + (x^2-5x+2)(3x^2)$

② $m = (2\cdot1-5)(1^3-4) + (1^2-5(1)+2)(3\cdot1^2)$

$= (-3)(-3) + (1-5+2)(3)$

$= 9 + (-6)$

$m = 3$

③ $y = mx+b$

$6 = 3(1)+b$

$6 = 3+b$

$6-3 = b$

$3 = b$

④ $y = mx+b$

$y = 3x+3$

10. $f(x) = \dfrac{\overbrace{3x-2}^{P}}{\underbrace{x-2}_{Q}}$ $\overset{x}{4}, \overset{y}{5}$

① $P' = 3 \quad Q' = 1$

$\dfrac{P'Q - PQ'}{Q^2}$

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

$= \dfrac{3x-6-3x+2}{(x-2)^2}$

$f'(x) = \dfrac{-4}{(x-2)^2}$

② $m = \dfrac{-4}{(4-2)^2} = \dfrac{-4}{4} = -1$

$m = -1$

③ $y = mx+b$

$5 = -1(4)+b$

$5 = -4+b$

$5+4 = b$

$9 = b$

④ $y = mx+b$

$y = -1x+9$

$y = -x+9$