Ex1

$$y = \ln(x^2-3) \qquad a = 2$$

$f(x) = \ln(x^2-3)$

- $f'(x) = \dfrac{2x}{x^2-3} \Rightarrow m = f'(2) = \dfrac{2\cdot 2}{2^2-3} = \dfrac{4}{1} = 4$

$\Rightarrow \quad t: \; y = 4x + h$

- $f(2) = \ln(2^2-3) = \ln(1) = 0 \Rightarrow T(2;0) \in t \Rightarrow 0 = 4\cdot 2 + h$
  $\Leftrightarrow h = -8$

$\Rightarrow \quad t: \; y = 4x - 8$

Variante avec formule :

- $f'(x) = \dfrac{2x}{x^2-3} \Rightarrow f'(2) = \dfrac{2\cdot 2}{2^2-3} = \dfrac{4}{1} = 4$

- $f(2) = \ln(2^2-3) = \ln(1) = 0$

$\Rightarrow \quad t: \; y - 0 = 4(x-2) \Leftrightarrow y = 4x - 8$

Ex 2

$$y = \frac{\ln(x)}{x} \qquad a = 1$$

$f(x) = \dfrac{\ln(x)}{x}$

$u = \ln(x) \qquad v = x$
$u' = \dfrac{1}{x} \qquad v' = 1$

- $f'(x) = \dfrac{\frac{1}{\cancel{x}}\cdot\cancel{x} - \ln(x)}{x^2} = \dfrac{1-\ln(x)}{x^2}$

$m = f'(1) = \dfrac{1-\ln(1)}{1^2} = \dfrac{1-0}{1} = 1$

$\Rightarrow \quad t: \; y = x + h$

- $f(1) = \dfrac{\ln(1)}{1} = 0 \Rightarrow T(1;0) \in t \Rightarrow 0 = 1 + h$
  $\Leftrightarrow h = -1$

$\Rightarrow \quad t: \; y = x - 1$

(corrigé ex 3 et 4 cf. corrigé ex. d'examen)