(4) $y = \frac{2x}{1+x} \rightarrow \frac{dy}{dx} = \frac{2}{(1+x)^2}$

A $(0,1)$ B (x_1, y_1)

$$m = \frac{dy}{dx}$$

$$y_1 - 1 = m(x_1 - 0)$$

$$y_1 - 1 = \frac{2}{(1+x_1)^2}(x_1) \quad \text{— (1)}$$

& B lies on the curve

so, $y_1 = \frac{2x_1}{1+x_1}$ — (2)

Substituting (2) in (1),

$$\frac{2x_1}{1+x_1} = \frac{2x_1}{(1+x_1)^2} + 1$$

$$\Rightarrow 2x_1(1+x_1) = 2x_1 + (1+x_1)^2$$

$$\Rightarrow 2x_1 + 2x_1^2 = 2x_1 + 1 + x_1^2 + 2x_1$$

$$\Rightarrow \boxed{x_1^2 - 2x_1 - 1 = 0}$$

$$x_1 = \frac{2 \pm \sqrt{4+4}}{2} = \frac{2 \pm 2\sqrt{2}}{2} \quad //$$