

15
A. 10 の 3 番目.

$$\begin{aligned}(1) \left(\frac{x}{x^2+1} \right)' &= \frac{(x)' \cdot (x^2+1) - x \cdot (x^2+1)'}{(x^2+1)^2} \\&= \frac{1 \cdot (x^2+1) - x \cdot 2x}{(x^2+1)^2} \\&= \frac{1-x^2}{(x^2+1)^2}\end{aligned}$$

$$(2) (t\sqrt{1+t^2})' = ?$$

$$(\sqrt{1+t^2})' = \frac{d\sqrt{u}}{du} \cdot \frac{du}{dt}$$

$$u = 1+t^2 \quad = \frac{1}{2} \cdot \frac{1}{\sqrt{u}} \cdot 2t = \frac{t}{\sqrt{1+t^2}}$$

$$\begin{aligned}(t\sqrt{1+t^2})' &= (t)' \sqrt{1+t^2} + t (\sqrt{1+t^2})' \\&= \sqrt{1+t^2} + t \frac{t}{\sqrt{1+t^2}} \\&= \frac{(1+t^2) + t^2}{\sqrt{1+t^2}} = \frac{2t^2+1}{\sqrt{1+t^2}}.\end{aligned}$$

(3) ~ (6) 4/10/22 12:15 10/10/22.

le mercredi expliquer
dernier.

II.

$$y = \sqrt{x}(x-1).$$

$$y' = (\sqrt{x})'(x-1) + \sqrt{x} \cdot (x-1)'$$

$$= \frac{1}{2} \frac{1}{\sqrt{x}} \cdot (x-1) + \sqrt{x}$$

$$= \frac{1}{2\sqrt{x}} \{ (x-1) + \underbrace{\sqrt{x} \cdot 2\sqrt{x}}_{= 2x} \}$$

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

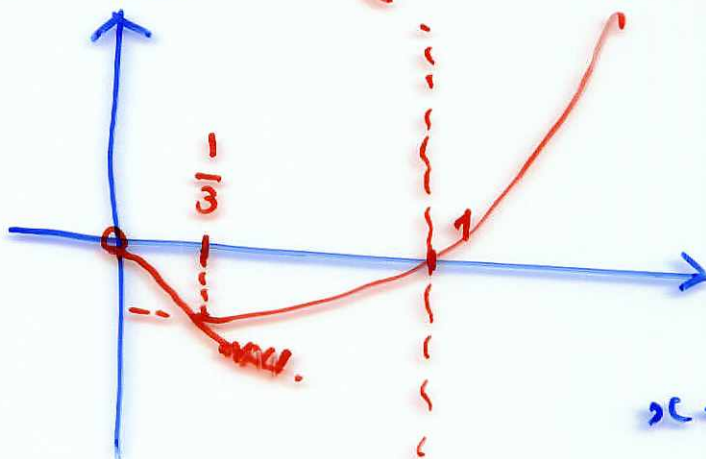
$$y' \geq 0 \Leftrightarrow 3x-1 \geq 0 \quad \frac{1}{3} \quad +$$

x	(0)		$\frac{1}{3}$	
y'	/	-	0	+
y	(0)	↘	↗	↗

$$\frac{1}{\sqrt{3}} \cdot \left(\frac{1}{3} - 1\right) = -\frac{2}{3\sqrt{3}}$$

$$y = \sqrt{x}(x-1)$$

$$y \geq 0 \Leftrightarrow x-1 \geq 0$$



$$\sqrt{x}(x-1) = \sqrt{x} \cdot x \left(1 - \frac{1}{x}\right) \sim x\sqrt{x}$$

$$I \quad (1) \left\{ (1+t^2)^{\frac{3}{2}} \right\}'$$

$$(2) \left(\frac{t^2}{1+t^2} \right)' = ?$$

$$(3) \left\{ \frac{1}{(x^2+1)^3} \right\}' = ?$$

$$(4) \left\{ (3-2x^2)^3 \right\}' = ?$$

II. $y = x + \frac{1}{x}$ の増減表

	(0)	
	/	
	/	