

4.2A
LT

$$y = \frac{5-4\sqrt{x}}{x-1} \quad x \geq 0, x \neq 1$$

$$(1) \lim_{x \rightarrow 1^+} \frac{1}{+0} = \infty \quad \lim_{x \rightarrow 1^-} \frac{1}{-0} = -\infty \rightarrow \boxed{x=1}$$

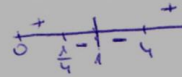
$$m = \lim_{x \rightarrow \infty} \frac{5-4\sqrt{x}}{x(x-1)} = 0 \quad n = \lim_{x \rightarrow \infty} \frac{5-4\sqrt{x}}{x-1} = 0 \rightarrow \boxed{y=0}$$

$$(2) y' = \frac{-4\sqrt{x}(x-1) - (5-4\sqrt{x})}{(x-1)^2} = \frac{-4x+4-10\sqrt{x}+8x}{2\sqrt{x}(x-1)^2} =$$

$$= \frac{4x-10\sqrt{x}+4}{2\sqrt{x}(x-1)^2}$$

$$0 = 2x-5\sqrt{x}+2 \rightarrow \sqrt{x}=2 \quad \sqrt{x}=\frac{1}{2}$$

$$x=4 \quad x=\frac{1}{4}$$



$$1 < x < 4, \quad \frac{1}{4} < x < 1 \rightarrow \text{max} \quad x > 4, \quad 0 < x < \frac{1}{4} \rightarrow \text{min}$$

$$\text{max}(\frac{1}{4}, -4) \quad \text{min}(4, -1)$$

