



Teste 5

Segunda feira  
dia 17 de maio

Dadas as funções

$f(x)$

$$\frac{e^x (-4 + x)}{\sqrt{(1 - x)(-5 + x)}}$$

$g(x)$

$$\frac{e^{-x} (-4 + x)}{\sqrt{(1 - x)(-5 + x)}}$$

$h(x)$

$$\frac{e^{-x^2} (-4 + x)}{\sqrt{(1 - x)(-5 + x)}}$$

Determine

1) domínio

2) assíntotas horizontais  
(limites para  $x \rightarrow +/-$  infinito)

3) zeros das funções

4) assíntotas verticais

5) pontos de máximo e mínimo

Esboce os gráficos digitalizados contendo os pontos obtidos nos itens anteriores

*Derivando*

$$( \text{Exp}[a(x)] b(x) / \sqrt{c(x)} )'$$

$$[ ( \text{Exp}[a(x)] b(x) )' \sqrt{c(x)} - \text{Exp}[a(x)] b(x) ( \sqrt{c(x)} )' ] / c(x)$$

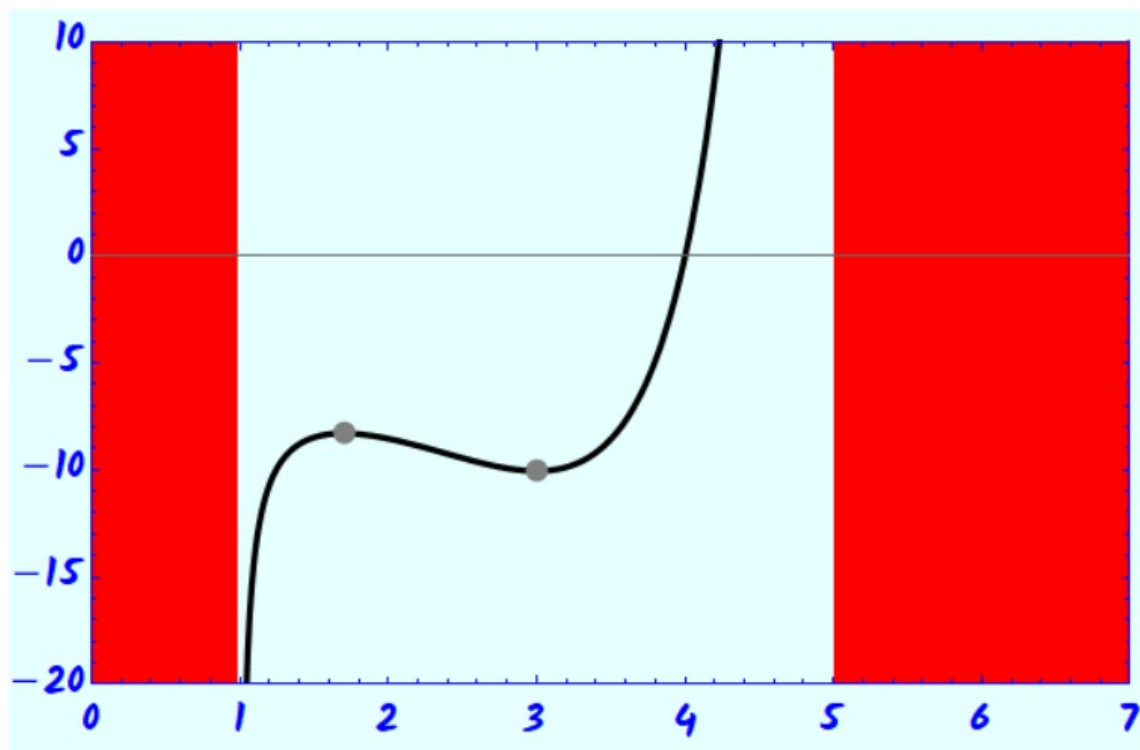
*Max e min: numerador nulo*

$$\text{Exp}[a(x)] [ a'(x) b(x) + b'(x) ] \sqrt{c(x)} - \text{Exp}[a(x)] b(x) \frac{c'(x)}{2\sqrt{c(x)}}$$

$$\text{Exp}[a(x)] [ 2 a'(x) b(x) c(x) + 2 b'(x) c(x) b(x) c'(x) ] / \sqrt{c(x)}$$

*Equação para encontrar max e min*

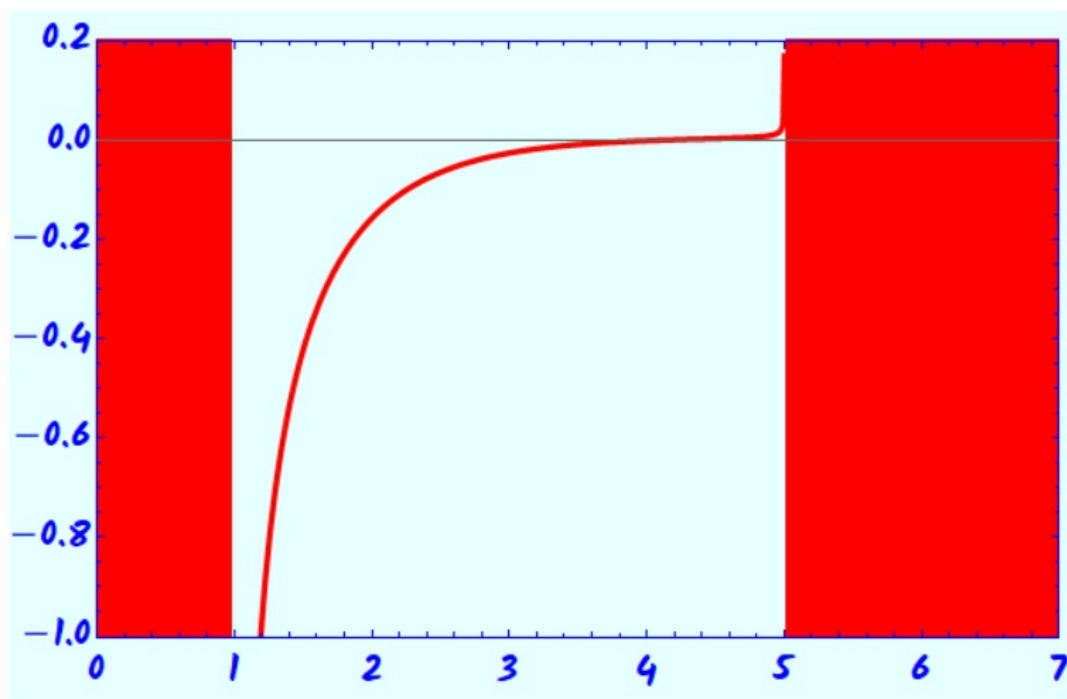
$$2 a'(x) b(x) c(x) + 2 b'(x) c(x) b(x) c'(x) ] = 0$$



$$\frac{(x-4)e^x}{\sqrt{(1-x)(x-5)}}$$

$$-27 + 30x - 10x^2 + x^3$$

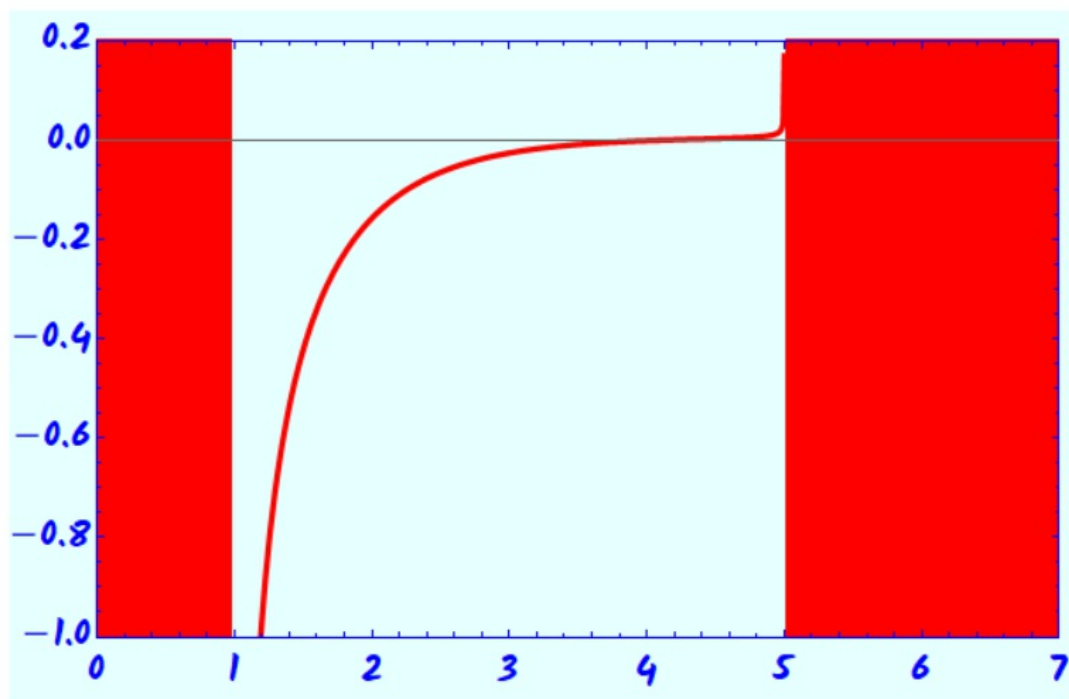
$$\{\{x \rightarrow 1.69722\}, \{x \rightarrow 3.\}, \{x \rightarrow 5.30278\}\}$$



$$\frac{e^{-x}(x-4)}{\sqrt{(1-x)(x-5)}}$$

$$-13+28x-10x^2+x^3$$

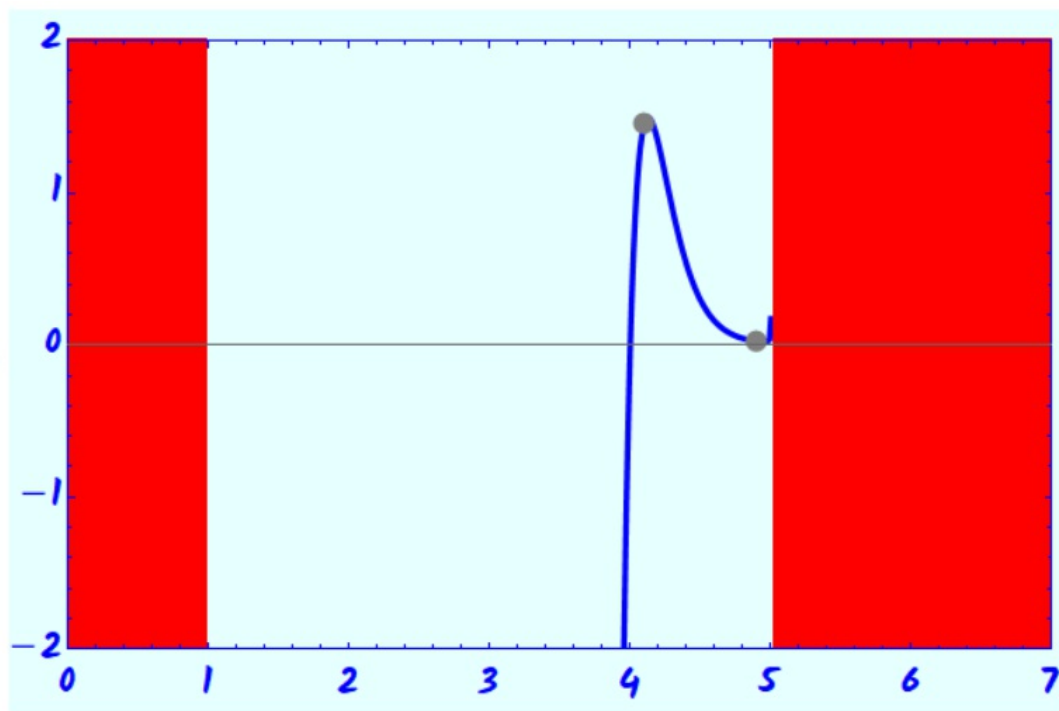
$$\{\{x \rightarrow 0.575923\}, \{x \rightarrow 4.71204 - 0.607577i\}, \{x \rightarrow 4.71204 + 0.607577i\}\}$$



$$\frac{e^{-x}(x-4)}{\sqrt{(1-x)(x-5)}}$$

$$-13+28x-10x^2+x^3$$

$$\{\{x \rightarrow 0.575923\}, \{x \rightarrow 4.71204 - 0.607577i\}, \{x \rightarrow 4.71204 + 0.607577i\}\}$$



$$\frac{e^{20} e^{-x^2} (x-4)}{\sqrt{(1-x)(x-5)}}$$

$$7-41x+58x^2-20x^3+2x^4$$

$$\{\{x \rightarrow 0.254558\}, \{x \rightarrow 0.673749\}, \{x \rightarrow 4.12752\}, \{x \rightarrow 4.94417\}\}$$