$2e^{2x} - 5e^{x} + 3 = 0 \qquad D = \mathbb{R}$

Changement de variable :

$$e^{x} = X \Rightarrow e^{2x} = X^{2} \quad ; \quad X > 0$$

$$(e^{a})^{b} = e^{ab}$$

$$(e^{x})^{2} = e^{2x}$$

On a donc : $2X^{2} - 5X + 3 = 0$

$$a = 2 \quad b = -5 \quad c = 3$$

$$\Delta = b^{2} - 4ac = (-5)^{2} - 4 \times 2 \times 3 = 25 - 24 = 1$$

$$X_1 = \frac{-b - \sqrt{\Delta}}{2a} = \frac{-(-5) - 1}{4} = \frac{5-1}{4} = 1$$

$$X_2 = \frac{-b + \sqrt{\Delta}}{2a} = \frac{5+1}{4} = \frac{6}{4} = \frac{3}{2}$$

Alors : 1) $e^{x} = 1 \Rightarrow x_1 = 0$

2) $e^{x} = \frac{3}{2} \Rightarrow x_2 = \ln\left(\frac{3}{2}\right) = \ln 3 - \ln 2$

$$S = \{0 ; \ln 3 - \ln 2\}$$