

Combi-functie

19. Linker deel:

$$f(x) = -1 + 4e^{-\frac{1}{2} + \frac{1}{4}x}$$

$$f'(x) = \frac{1}{4} \cdot 4e^{-\frac{1}{2} + \frac{1}{4}x} = e^{-\frac{1}{2} + \frac{1}{4}x}$$

$$f'(2) = e^{-\frac{1}{2} + \frac{1}{4} \cdot 2} = e^0 = 1$$

Rechter deel:

$$f(x) = 1 + \frac{2}{3}x - \frac{1}{4}x^2$$

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

$$f'(2) = \frac{2}{3} - \frac{1}{2} \cdot 2 = \frac{1}{3}$$

20. $\frac{1}{16}x_A^3 + \frac{1}{4}x_A + 2 = \frac{1}{2}$

Voer in: $y_1 = \frac{1}{16}x^3 + \frac{1}{4}x + 2$ $y_2 = \frac{1}{2}$

Intersect geeft: $x \approx -2,4268$ $\text{dus } x_A \approx -2,4268$

$$1 + \frac{3}{2}x_B - \frac{1}{4}x_B^2 = \frac{1}{2}$$

Voer in: $y_3 = 1 + \frac{3}{2}x - \frac{1}{4}x^2$ $y_4 = \frac{1}{2}$

Intersect geeft: $x \approx 6,3166$ $\text{dus } x_B \approx 6,3166$

$$AB = x_B - x_A = 6,3166 - (-2,4268) \approx 8,74$$