

Eindexamen wiskunde B1 havo 2005-II

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Een familie van functies

$$15. \quad f(x) = 1 \quad \rightarrow \quad \begin{aligned} 2x^2 - 2x &= 1 \\ x^2 - x - \frac{1}{2} &= 0 \end{aligned}$$

$$\text{dus } x = \frac{1 \pm \sqrt{1+2}}{2} \quad \text{ofwel} \quad x = \frac{1}{2} - \frac{1}{2}\sqrt{3}$$

$$\text{of:} \quad x = \frac{1}{2} + \frac{1}{2}\sqrt{3}$$

De afstand AB bedraagt dan

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

In twee decimalen is de afstand 1,73

$$\text{Of met de GR:} \quad y_1 = 2x^2 - 2x \quad y_2 = 1$$

$$\text{Intersect} \quad x = -0,366 \quad x = 1,366$$

$$\text{De afstand is dan } 1,366 - (-0,366) = 1,73$$

$$16. \quad \begin{aligned} (2x^2 - 2x)^2 &= 4x^4 - 4x^3 - 4x^3 + 4x^2 \\ &= 4x^4 - 8x^3 + 4x^2 \end{aligned}$$

$$17. \quad \frac{dg}{dx} = 2 \cdot (2x^2 - 2x) \cdot (4x - 2)$$

$$g'(-1) = -48, \text{ dus } y = -48x + b \text{ door } (-1, 16)$$

$$\rightarrow 16 = -48 \cdot -1 + b \quad \rightarrow b = -32$$

$$y = -48x - 32 = 0 \quad \text{geeft } x = \frac{-32}{48} = -\frac{2}{3}$$

$$18. \quad x = \frac{1}{2} \quad \rightarrow \quad y^{(1/2)} = (2 \cdot (\frac{1}{2})^2 - 2 \cdot (\frac{1}{2})^n) = (-\frac{1}{2})^n$$

$$|(-\frac{1}{2})^n| < 0,001 \quad \rightarrow \quad n > \frac{\ln(0,001)}{\ln(\frac{1}{2})} = 9,97 \quad \text{Dus } n \geq 10$$