

Eindexamen wiskunde B1-2 vwo 2002-II

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Oppervlakte

$$1. \quad f'(x) = \frac{1}{2\sqrt{x-1}} \rightarrow f'(10) = \frac{1}{6}$$

$$\begin{aligned} y &= \frac{1}{6}x + b \text{ door } P(10, 3) \rightarrow b = 3 - \frac{1}{6} \cdot 10 = \frac{4}{3} \\ &\rightarrow k: y \rightarrow \frac{1}{6}x + \frac{4}{3} \end{aligned}$$

$$2. \quad \frac{1}{6}x + \frac{4}{3} = 0 \rightarrow x = -8$$

$$\begin{aligned} A &= \int_{-8}^{10} \left(\frac{1}{6}x + \frac{4}{3} \right) dx - \int_{-8}^{10} (\sqrt{x-1}) dx = \left[\frac{x^2}{12} + \frac{4x}{3} \right]_{-8}^{10} - \left[\frac{2}{3}(x-1)^{\frac{3}{2}} \right]_{-8}^{10} = \\ &= 8\frac{1}{3} + 13\frac{1}{3} - 5\frac{1}{3} + 10\frac{2}{3} - 18 = 9 \end{aligned}$$