

Horizontale lijnen

12. Lijn $y = p$ gaat door de top van f . top $\rightarrow f' = 0$

$$f(x) = 6x - x^2 \quad f'(x) = 6 - 2x \quad x = 3$$

$$f(3) = 6 \cdot 3 - 3^2 = 9 \quad \text{dus } p = 9$$

13. $S = DC \cdot DA$

$$DA = f(a) = 6a - a^2 \quad DC = x_C - x_D = (6 - a) - a = 6 - 2a$$

$$S = (6 - 2a) \cdot (6a - a^2)$$

14. Maximale oppervlakte S : $\rightarrow S' = 0$

$$S = (6 - 2a) \cdot (6a - a^2) = 36a - 6a^2 - 12a^2 + 2a^3 = 2a^3 - 18a^2 + 36a$$

$$S' = 6a^2 - 36a + 36 = 0$$

$$a^2 - 6a + 6 = 0$$

$$D = (-6)^2 - 4 \cdot 1 \cdot 6 = 12$$

$$a = \frac{6 - \sqrt{12}}{2} \quad a = \frac{6 + \sqrt{12}}{2}$$

$$a = 3 - \sqrt{3} \quad a = 3 + \sqrt{3}$$

$$0 < a < 3 \quad \rightarrow \quad a = 3 - \sqrt{3}$$