Snijden en schuiven

8. $A_V = \int(g(x) - f(x))dx$

$f(x) = g(x) \quad \rightarrow \quad x^2 = 3\sqrt{x}$

$\rightarrow \quad x = 0 \quad$ of $\quad x = \sqrt[3]{9} = 3^{\frac{2}{3}}$

$A_V = \int_0^{3^{\frac{2}{3}}}(3\sqrt{x} - x^2)dx = \left[2x^{3/2} - \frac{1}{3}x^3\right]_0^{3^{\frac{2}{3}}} = 6 - 3 = 3$

9. $g(a) = 2 \cdot f(a)$

$3\sqrt{a} = 2 \cdot a^2 \quad \rightarrow \quad 9 \cdot a = 4 \cdot a^4 \quad \rightarrow \quad a = 0 \quad$ of $\quad 4a^3 = 9$

Dus $AB = BC$ geldt voor $a = (9/4)^{1/3} = (3/2)^{2/3}$

10. Er moet gelden: $f'(x) = g'(x)$

$$2x = \frac{3}{2\sqrt{x}} \quad \rightarrow \quad 4x^{3/2} = 3 \quad \rightarrow \quad x = (3/4)^{2/3}$$

De grafiek is $g((3/4)^{2/3}) - f((3/4)^{2/3}) = 2{,}726 - 0{,}681 = 2{,}04$ omhoog geschoven.