Gebroken functie

4. $f'(x) = 1 - \frac{4}{x^2} = 0 \rightarrow x^2 = 4 \rightarrow x = -2 \text{ v } x = 2$

De toppen zijn $(-2, f(-2))$ en $(2, f(2))$ dus
$(-2, -4)$ en $(2, 4)$

5. $y = f(x) \rightarrow x + \frac{4}{x} = 5 \rightarrow (x-1)\cdot(x-4) = 0 \rightarrow x = 1 \text{ v } x = 4$

$$A_V = 3 \,.\, 5 - \int_1^4 (x + \frac{4}{x})\, dx = 15 - \left[\tfrac{1}{2}x^2 + 4 \ln x\right]_1^4 = 15 - (8 + 4\ln 4 - (\tfrac{1}{2})) = 7\tfrac{1}{2} - 4\ln 4$$

6. $$L_{v_1} = \int_1^4 \sqrt{1+(f'(x))^2}\,dx = \int_1^4 \sqrt{1+(1-\frac{4}{x^2})^2}\,dx = 3{,}79$$

Met de GR: $y_1 = \sqrt{(1 + (1 - 4/x^2)^2)}$

Optie $\int f(x)dx$ linkergrens 1 rechtergrens 4 uitkomst 3,79

$L_{V_2} = 4 - 1 = 3 \rightarrow L_V = 3 + 3{,}79 = 6{,}79$