

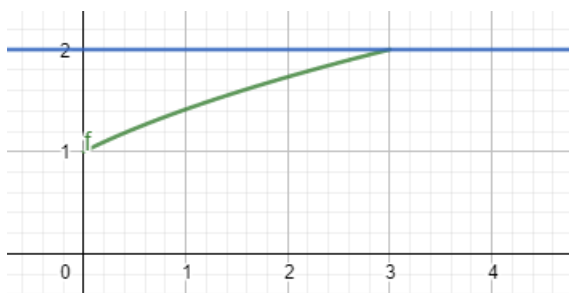
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### Opgave 003

$$f(x) = \sqrt{x+1}$$

$$Dm = [0; 3]$$

$$g(x) = 2$$



#### Opgave A

$$A_g = \int_0^3 2 \, dx$$

$$A_g = 6$$

$$A_f = \int_0^3 \sqrt{x+1} \, dx$$

$$A_f = \int_0^3 (x+1)^{\frac{1}{2}} \, dx$$

$$A_f = \left[ \frac{(x+1)^{\frac{3}{2}}}{\frac{3}{2}} \right]_0^3$$

$$A_f = 4,666667$$

$$A = A_g - A_f$$

$$A = 6 - 4,666$$

$$A = 1,334$$

#### Opgave B

$$V_g = \pi \int_0^3 (2)^2 \, dx \approx 37,69911$$

$$V_f = \pi \int_0^3 (\sqrt{x+1})^2 \, dx$$

$$V_f = \pi \int_0^3 x + 1 \, dx$$

$$V_f = 23,56194$$

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$$\begin{aligned}
 V &= V_g - V_f \\
 V &= 37.699 - 23.561 \\
 V &= 14,138
 \end{aligned}$$

## CAS

$$\begin{aligned}
 \text{Define: } f(x) &= \sqrt{x+1} \\
 \text{Define: } g(x) &= 2
 \end{aligned}$$

Opgave A

$$A = \int_0^3 g(x) - f(x) \, dx \approx 1,333333$$

Opgave B

$$V = \pi \int_0^3 (g(x))^2 - (f(x))^2 \, dx \approx 14,13717$$