

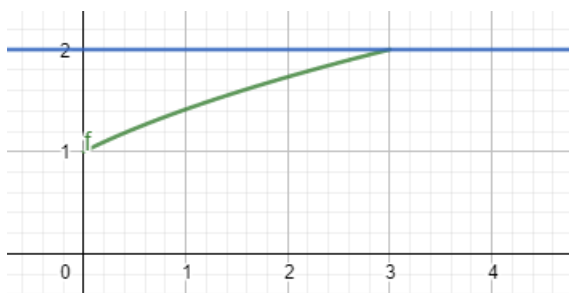
	Navn:		Skole:	
	Klasse: 20		Dato: 19. oktober 2022	Fag: Matematik A

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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$$V = V_g - V_f$$

$$V = 37.699 - 23.561$$

$$V = 14,138$$

CAS

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

$$\text{Define: } g(x) = 2$$

Opgave A

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

Opgave B

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