	Navn:		Skole:	
	Klasse: 20		Dato: 23. oktober 2022	Fag: Matematik A

Opgave 004

$$K'(t) = 0.4 + 2\cos(0.25t)$$

Opgave A)

$$K'(5)$$
$$0.4 + 2\cos(0.25 \cdot 5) \approx 1{,}030645$$

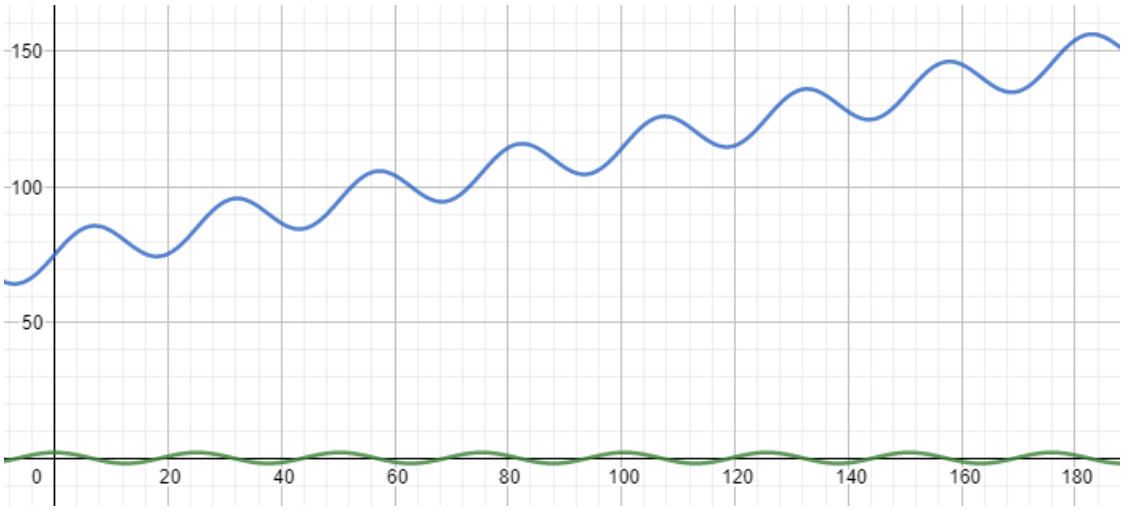
Opgave B)

$$K(t) = \int 0.4 + 2 \cdot \cos(0.25t)$$
$$K(t) = 0.4x + 8 \cdot \sin(0.25t) + c$$

$$K(0) = 75$$
$$0.4 \cdot (0) + 8 \cdot \sin(0.25 \cdot 0) + c = 75$$
$$c = 75 - 0.4 \cdot (0) + 8 \cdot \sin(0.25 \cdot 0)$$
$$c = 75 - 0$$
$$c = 75$$

$$K(t) = 0.4t + 8\sin(0.25t) + 75$$

Opgave C)



Opgave D)

$$K(90) = 0.4 \cdot 90 + 8\sin(0.25 \cdot 90) + 75$$
$$K(90) = 107{,}1026$$

Opgave E)

$$K(t) = 150$$

$$0.4t + 8\sin(0.25 \cdot t) = 150$$

CAS

$$Define: K_{mærke}(t) = 0.4 + 2\cos(0.25t)$$

Opgave A

$$K_{mærke}(5) \approx 1{,}030645$$

Opgave B

$$K = \int 0.4 + 2\cos(0.25t)\, dt$$

$$Define: K(t) = 0{,}4 \cdot t + 8 \cdot \sin(0{,}25 \cdot t) + C$$

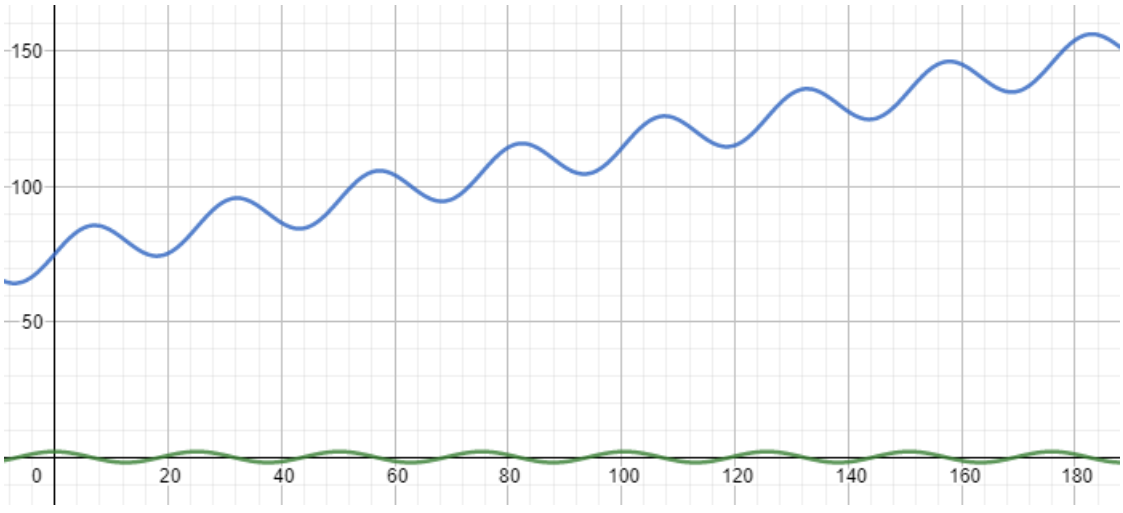
$$K(0) = 75$$

⇕ *The equation is solved for C by WordMat.*

$$C = 75$$

$$Define: K(t) = 0.4t + 8\sin(0.25t) + 75$$

Opgave C



Opgave D

$$K(90) \approx 107{,}1026$$

	Navn:		Skole:	
	Klasse: 20		Dato: 23. oktober 2022	Fag: Matematik A

Opgave E

$$K(t) = 150$$

The equation is solved numerically for t by WordMat.

$$t \approx 177{,}9259 \quad \vee \quad t \approx 188{,}7447 \quad \vee \quad t \approx 198{,}6874$$

Solutions where found using numeric methods. More solutions may exist though