Oppervlakte van een trapezium

18. $A_V = \cos t \cdot \sin t + ½ \cdot \sin t \cdot (1 - \cos t) = ½ \sin 2t + ½ \sin t - {}^1/_4 \sin 2t =$
$= ½ \sin t + {}^1/_4 \sin 2t$

19. $V({}^\pi/_4) = 0{,}6036$
$½ \sin t + {}^1/_4 \sin 2t = 0{,}6036$
Met de GR:
$y_1 = ½ \cdot \sin x + {}^1/_4 \sin 2x$ $\quad$ $y_2 = 0.6036$
intersect $\rightarrow$ x 1,32 $\rightarrow$ t = 1,32

20. $\frac{dV}{dt} = ½ \cos t + ½ \cos 2t$

$\frac{dV}{dt} = 0 \rightarrow \cos t = -\cos 2t$
Met de GR:
$y_1 = \cos x$ $\quad$ $y_2 = -\cos 2x$
intersect $\rightarrow$ $x = {}^\pi/_3$
Dus voor $t = {}^\pi/_3$ is V maximaal.

21. $\int_0^{\frac{\pi}{2}} (\frac{1}{2}\sin t + \frac{1}{4}\sin 2t)dt = \frac{\pi}{2} \cdot k$

$\frac{1}{4}\int_0^{\frac{\pi}{2}} (2\sin t + \sin 2t)dt = \frac{1}{4} \cdot \left[-2\cos t - \frac{1}{2}\cos 2t\right]_0^{\frac{\pi}{2}} = {}^1/_4 \cdot (½ - (-2 - ½)) = {}^3/_4$

$\rightarrow$ ${}^\pi/_2 \cdot k = {}^3/_4$ $\quad$ dus $k = {}^3/_{2\pi}$