

Eindexamen wiskunde B1 vwo 2004-I

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Een verzameling functies

11. f_2 is minimaal 1 en maximaal 2 \rightarrow $a = 1,5$
 \rightarrow $b = 0,5$
De periode van f_2 is π \rightarrow $c = 2$
 $f_2(x) = 1,5$ \rightarrow $d = \frac{3}{4}\pi$

12. $1 + (\frac{1}{2})^2 + \cos(\frac{n\pi}{6}) = \frac{1}{4}$ \rightarrow $\cos(\frac{n\pi}{6}) = -1$

$$\frac{n\pi}{6} = \pi + 2k \cdot \pi \rightarrow n = 6 \cdot (1 + 2k)$$

$$k = 0 \rightarrow n = 6$$

$$k = 1 \rightarrow n = 18$$

$$k = 2 \rightarrow n = 30$$

$$k = 3 \rightarrow n = 42$$

13. $f_4(x) = 1 + \sin^2 x + \cos(4x) = 1 + (\frac{1}{2} - \frac{1}{2}\cos(2x)) + \cos(4x)$
 $= 1\frac{1}{2} - \frac{1}{2}\cos(2x) + \cos(4x)$

14. $A_{OABC} = 2\pi \cdot 3 = 6\pi$

$$\int_0^{2\pi} f_4(x) dx = \int_0^{2\pi} (1\frac{1}{2} - \frac{1}{2}\cos(2x) + \cos(4x)) dx = [1\frac{1}{2}x - \frac{1}{4}\sin(2x) + \frac{1}{4}\sin(4x)]_0^{2\pi} = 3\pi = \frac{1}{2} \cdot A_{OABC}$$