

Lissajouskromme

12. Snijpunten x-as: $y(t) = 0 \rightarrow \sin(2t + \frac{1}{3}\pi) = 0 \rightarrow 2t + \frac{1}{3}\pi = k \cdot \pi$

$$t = (\frac{1}{2}k - \frac{1}{6})\pi, \text{ dus } t \in \{-\frac{1}{6}\pi, \frac{1}{3}\pi, \frac{5}{6}\pi, \frac{4}{3}\pi\}$$

Coördinaten: $(-\frac{1}{2}, 0), (\frac{1}{2}\sqrt{3}, 0), (\frac{1}{2}, 0)$ en $(-\frac{1}{2}\sqrt{3}, 0)$

13. $v(0) = \sqrt{(x'(0))^2 + (y'(0))^2}$

$$\frac{dx}{dt} = \cos t, \quad \frac{dy}{dt} = 2 \cdot \cos(2t + \frac{1}{3}\pi) \quad v(0) = \sqrt{1 + 1} = \sqrt{2}$$

14. $AB = y(a) - y(\pi - a) = \sin(2a + \frac{1}{3}\pi) - \sin(2(\pi - a) + \frac{1}{3}\pi) =$
 $= 2 \cdot \sin(2a - \pi) \cdot \cos(\frac{1}{3}\pi) =$
 $= 2 \cdot -\sin 2a \cdot \frac{1}{2} = -\sin 2a$