

JUURIFUNKTION ÄÄRIARVOT

$$f(x) = \sqrt{g(x)} \longrightarrow \text{määrittelyehto } g(x) \geq 0$$

↓
huomioi kulkukaariossa!

$$f(x) = x \sqrt[4]{4-x^2}$$

tutkitaan $f(x)$ ääriarvot $f'(x)$ avulla

esim1 ilman CAS

$$f(x) = x(4-x^2)^{\frac{1}{4}}$$

$$4-x^2 \geq 0 \quad \begin{array}{c} -2 \quad 2 \\ \text{---} \\ \text{---} \end{array}$$

$$-2 \leq x \leq 2$$

$$f'(x) = 1(4-x^2)^{\frac{1}{4}} + x \cdot \frac{1}{4}(4-x^2)^{-\frac{3}{4}} \cdot (-2x) = \sqrt[4]{4-x^2} - \frac{x^2}{2\sqrt[4]{(4-x^2)^3}}$$

$$f'(x) = 0 \longrightarrow \sqrt[4]{4-x^2} = \frac{x^2}{2\sqrt[4]{(4-x^2)^3}} \quad \parallel \cdot 2\sqrt[4]{(4-x^2)^3}$$

$$2(4-x^2) = x^2$$

$$8 - 2x^2 = x^2$$

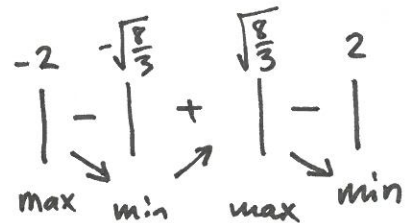
$$8 = 3x^2$$

$$x = \pm \sqrt{\frac{8}{3}}$$

$$f'(1,8) = -1,06$$

$$f'(0) = 1,41$$

$$f'(-1,8) = -1,06$$



ääriarvokohdat
minimi $x = -\sqrt{\frac{8}{3}}, x = 2$
maksimi $x = \sqrt{\frac{8}{3}}, x = -2$

Sarja 1

17.1 ei CAS

17.3

17.5

17.6

17.7 ei CAS

Sarja 2

17.4



ääriarvot $f(-\sqrt{\frac{8}{3}}) = \dots$

$$f(\sqrt{\frac{8}{3}}) = \dots$$

$$f(-2) = \dots$$

$$f(2) = \dots$$