

What are the roots of

$$x^2 = 4 \quad ?$$

- Picard's method :

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

$$g(x) = x + f(x) = x^2 + x - 4$$

$$x^{(k+1)} = (x^{(k)})^2 + x^{(k)} - 4$$

- Newton's method

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

$$f'(x) = 2x$$

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