

Facit:

1. $z = -2 \vee z = 2 - 2i$
2. $z = 1 - i \vee z = 1 - \frac{\sqrt{3}}{2} + \frac{i}{2} \vee z = 1 + \frac{\sqrt{3}}{2} + \frac{i}{2}$
4. a) $\frac{9}{6}$, b) 0, c) $+\infty$,
5. $a = \frac{1}{4}$
6. $f'(x) = 0, \forall x \in]0, \pi[$. $f(x) \equiv 0$ på $]0, \pi[$.
7.
$$\begin{cases} \text{lokalt maximum} & \frac{4}{e^2} & \text{if } x = -2 \\ \text{lokalt minimum} & 0 & \text{if } x = 0 \end{cases}$$

Inget globalt maximum, globalt minimum = 0.
8. $a = e^{-2}$. Minsta maxivärdet $(\frac{1}{e})^{(\frac{1}{e^2})} \approx 0,873$.
9. 4.
11. $e^{2/\pi}$.
12. Konvergent om $x \in]-\sqrt{6}, -2[\cup]2, \sqrt{6}[$.
Summan är $\frac{1}{x^2 - 4}$.
13. a)
$$\frac{\sin(\arccos x)}{x(1 + (\ln x)^2)} - \frac{x \arctan(\ln x)}{\sqrt{1 - x^2}}$$

b)
$$\left((\tan x)^{\sin(\sqrt{\cos x})} \cdot \left(\cos(\sqrt{\cos x}) \cdot \frac{1/2}{\sqrt{\cos x}} \cdot (-\sin x) \cdot \ln(\tan x) + \frac{\sin(\sqrt{\cos x})}{\tan x + \cos^2 x} \right) \right)$$

14. $\pi/8$.

15. $2 \cdot \ln|x^2 - 4x + 13| + 3 \cdot \arctan\left(\frac{x-2}{3}\right) + C$.

16. $2(\sqrt{2} - 1)$.

17. $\ln\left(\frac{3}{2}\right)$.

18. Konvergent.

19. Divergent.

20. Gränsvärdet $-\frac{7}{6}$ om $a=2$.

21. Gränsvärdet -8 .