$$= \frac{z-\frac{1}{2}}{(z-\frac{1}{2})(1-\frac{1}{2}z)} \Big/_{z=\frac{1}{2}} = \underline{\frac{4}{3}}$$

$$\underline{\sigma_f^2} = \sigma_{AD}^2 \frac{1}{2\pi}\int_{-\pi}^{\pi} |H_{AD-f}(e^{i\omega})|^2 d\omega + \sigma_{M1}^2 \frac{1}{2\pi}\int_{-\pi}^{\pi} |H_{M1-f}(e^{i\omega})|^2 d\omega$$

$$+ \sigma_{M2}^2 \frac{1}{2\pi}\int_{-\pi}^{\pi} |H_{M2-f}(e^{i\omega})|^2 d\omega$$

$$= \sigma_{AD}^2 \cdot 1 + \sigma_{M1}^2 \cdot 4 + \sigma_{M2}^2 \frac{4}{3} = \underline{\frac{19}{3}\sigma_{16}^2} = \frac{19}{3}\frac{2^{-30}}{12}$$

$$\underline{0{,}49 \cdot 10^{-9}}$$

d)

Endvirig med feler at $\sigma_{AD}^2 = \frac{2^{-12}}{12} = 2^8 \frac{2^{-30}}{12} = 2^8 \sigma_{16}^2$

$$\underline{\sigma_f^2} = 2^8 \sigma_{16}^2 \cdot 1 + \sigma_{16}^2 \cdot 4 + \sigma_{16}^2 \cdot \frac{4}{3} = \underline{\frac{784}{3}\sigma_{16}^2} = \frac{784}{3}\frac{2^{-30}}{12}$$

$$\underline{20{,}3 \cdot 10^{-9}}$$