

Complex Fractions

12)

$$\frac{\frac{16}{m-3} - \frac{4}{m-4}}{m^2} = \frac{\frac{16(m-4) - 4(m-3)}{(m-3)(m-4)}}{\frac{16(m-3) - m^2(m-4)}{(m^2)(m-3)}}$$

$$= \frac{16m - 64 - 4m + 12}{(m-3)(m-4)}$$

$$\frac{16m - 48 - m^3 + 4m^2}{(m^2)(m-3)}$$

$$= \frac{12m - 58}{(m-3)(m-4)} \quad | \quad K$$

$$\frac{-m^3 + 4m^2 + 16m - 48}{(m^2)(m-3)} \quad | \quad C$$

$$= \frac{12m - 58}{(m-3)(m-4)} \cdot \frac{(m^2)(\cancel{m-3})}{-m^3 + 4m^2 + 16m - 48}$$

$$= \frac{m^2(12m - 58)}{(m-4)(-m^3 + 4m^2 + 16m - 48)}$$

$$= \frac{12m^3 - 58m^2}{-m^4 + 4m^3 + 16m^2 - 48m + 4m^3 - 16m^2 - 64m + 192}$$

$$\alpha = \frac{12m^3 - 58m^2}{-m^4 + 8m^3 - 112m + 192}$$