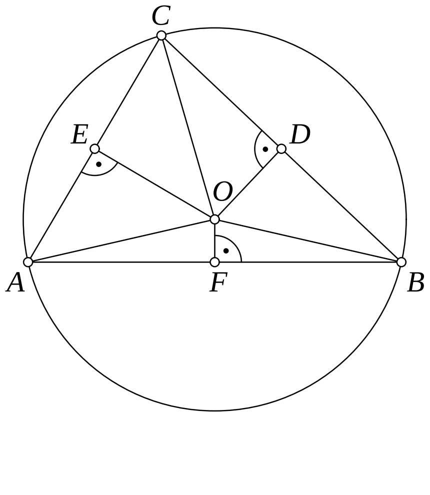
T.1.3 Formeln – Umkreismittelpunkt



$$\measuredangle BOC = 2\alpha, \qquad \measuredangle COA = 2\beta, \qquad \measuredangle AOB = 2\gamma,$$

$$\measuredangle BOD = \measuredangle COD = \alpha, \qquad \measuredangle COE = \measuredangle AOE = \beta, \qquad \measuredangle AOF = \measuredangle BOF = \gamma,$$

$$\measuredangle DOE = \alpha + \beta, \qquad \measuredangle EOF = \beta + \gamma, \qquad \measuredangle FOD = \gamma + \alpha,$$

$$\measuredangle BCO = \measuredangle CBO = 90^\circ - \alpha, \qquad \measuredangle CAO = \measuredangle ACO = 90^\circ - \beta,$$

$$\measuredangle ABO = \measuredangle BAO = 90^\circ - \gamma,$$

$$AO = BO = CO = R,$$

$$DO = R\cos\alpha, \qquad EO = R\cos\beta, \qquad FO = R\cos\gamma,$$
$$DO + EO + FO = R + r,$$

$$a = 2R\sin\alpha, \qquad b = 2R\sin\beta, \qquad c = 2R\sin\gamma,$$

$$[BOC] = \frac{R^2}{2}\sin 2\alpha = \frac{aR}{2}\cos\alpha, \qquad [COA] = \frac{R^2}{2}\sin 2\beta = \frac{bR}{2}\cos\beta,$$

$$[AOB] = \frac{R^2}{2}\sin 2\gamma = \frac{cR}{2}\cos\gamma.$$

(Wird fortgesetzt.)