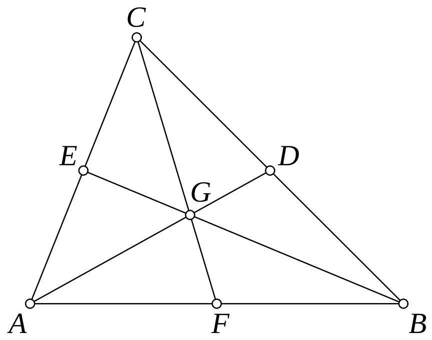
T.1.7 Formeln – Schwerpunkt



$$AF = FB = \frac{c}{2}, \qquad BD = DC = \frac{a}{2}, \qquad CE = EA = \frac{b}{2},$$

$$AF + BD + CE = FB + DC + EA = s,$$

$$AD = m_a = \sqrt{\frac{b^2+c^2}{2} - \frac{a^2}{4}}, \qquad BE = m_b = \sqrt{\frac{c^2+a^2}{2} - \frac{b^2}{4}},$$

$$CF = m_c = \sqrt{\frac{a^2+b^2}{2} - \frac{c^2}{4}},$$

$$AD^2 + BE^2 + CF^2 = m_a^2 + m_b^2 + m_c^2 = \frac{3}{4}(a^2+b^2+c^2),$$

$$\sin\measuredangle ACF = \frac{c\sin\alpha}{\sqrt{2(a^2+b^2)-c^2}}, \qquad \sin\measuredangle BCF = \frac{c\sin\beta}{\sqrt{2(a^2+b^2)-c^2}},$$

$$\sin\measuredangle BAD = \frac{a\sin\beta}{\sqrt{2(b^2+c^2)-a^2}}, \qquad \sin\measuredangle CAD = \frac{a\sin\gamma}{\sqrt{2(b^2+c^2)-a^2}},$$

$$\sin\measuredangle CBE = \frac{b\sin\gamma}{\sqrt{2(c^2+a^2)-b^2}}, \qquad \sin\measuredangle ABE = \frac{b\sin\alpha}{\sqrt{2(c^2+a^2)-b^2}},$$

$$AG = \frac{2}{3}AD, \qquad BG = \frac{2}{3}BE, \qquad CG = \frac{2}{3}CF,$$

$$DG = \frac{1}{3}AD, \qquad EG = \frac{1}{3}BE, \qquad FG = \frac{1}{3}CF.$$

(Wird fortgesetzt.)