

- 1 a) $\sqrt{58}$ b) $5\sqrt{2}$
- 2 $\overline{AB} = \sqrt{21}$, $\overline{BC} = 2\sqrt{11}$, $\overline{CA} = 3\sqrt{5}$, $s_b = \frac{1}{2}\sqrt{37}$
- 3 $|\vec{a}| = \sqrt{5}$, $|\vec{b}| = 7$, $|\vec{c}| = 5$, $|\vec{d}| = 3$, $|\vec{e}| = 3$, $|\vec{f}| = \sqrt{29}$, $|\vec{g}| = \sqrt{5}$, $|\vec{h}| = 1$
- 4 $|\vec{a}| = \sqrt{29}$, $|\vec{b}| = \sqrt{3}$, $|\vec{c}| = 3$, $|\vec{d}| = 2,5$, $|\vec{e}| = 7$, $|\vec{f}| = 1$, $|\vec{g}| = 1$, $|\vec{h}| = 6$
- 5 $\frac{1}{\sqrt{5}}\vec{a}$, $\frac{1}{\sqrt{14}}\vec{b}$, \vec{c} , $\frac{10}{3}\vec{d}$, $\frac{4}{\sqrt{26}}\vec{e}$, $2\vec{f}$, $\frac{1}{21}\vec{g}$, $\frac{1}{\sqrt{10}}\vec{h}$
- 6 a) $\sqrt{65}$ b) $\sqrt{181}$ c) 3 d) $\sqrt{21}$ e) $\sqrt{13}$ f) 3
- 7 $s_a = 9$, $s_b = 6\sqrt{11}$, $s_c = 15$
- 8 Vgl. Fig. 70
- 9 a) $125,54^\circ$ b) $79,39^\circ$ c) $130,9^\circ$
- 10 $\sphericalangle ([SO], [SA]) = 58,41^\circ$ $\sphericalangle ([SO], [SB]) = 57,69^\circ$
- 11 a) $110,77^\circ$ b) 90° c) $54,93^\circ$ d) $65,56^\circ$ e) $57,12^\circ$ f) 90°
- 12 a) $\alpha = 78,69^\circ$
 $\beta = 42,27^\circ$
 $\gamma = 59,04^\circ$ b) $\alpha = 109,65^\circ$
 $\beta = 29,74^\circ$
 $\gamma = 40,60^\circ$ c) $\alpha = 56,43^\circ$
 $\beta = 68,24^\circ$
 $\gamma = 55,33^\circ$ d) $\alpha = 27,28^\circ$
 $\beta = 94,03^\circ$
 $\gamma = 58,69^\circ$
- 13 a) $\alpha = 35,26^\circ$ b) $\beta = 70,53^\circ$
- 14 $67,38^\circ$ ($65,89^\circ$)
- 15 $\sphericalangle AMB = 107,83^\circ$; $\sphericalangle BMC = 60,67^\circ$ (vgl. Fig. 71)
- 16 a) Pfeile orthogonal zueinander b) $|\vec{a}|^2$
- 17 Vgl. Fig. 72
- 18 a) -3 b) 3 c) 0 d) 0 e) -3 f) 3 g) -6 h) 8