P 2.2
Kosinus-Satz im Dreieck ABD:

$$\overline{BD}^2 = \overline{AB}^2 + \overline{AD}^2 - 2 \cdot \overline{AB} \cdot \overline{AD} \cdot \cos \sphericalangle BAD$$

$$\Leftrightarrow \overline{BD}^2 = (7{,}5^2 + 7^2 - 2 \cdot 7{,}5 \cdot 7 \cdot \cos 50°)\ m^2$$

$$\Leftrightarrow \overline{BD}^2 = 37{,}76\ m^2$$

$$\Leftrightarrow \overline{BD} = 6{,}14\ m$$

$$\frac{\sin \sphericalangle DBA}{\overline{AD}} = \frac{\sin \sphericalangle BAD}{\overline{BD}}$$

$$\Leftrightarrow \sin \sphericalangle DBA = \frac{\sin \sphericalangle BAD \cdot \overline{AD}}{\overline{BD}}$$

$$\Leftrightarrow \sin \sphericalangle DBA = \frac{\sin 50° \cdot 7\ m}{6{,}14\ m} = 0{,}87$$

$$\Leftrightarrow \sphericalangle DBA = 60{,}85° \quad (\text{und } \sphericalangle DBA = 119{,}15° \text{ keine Lösung})$$

P 2.3

$$\sphericalangle CBD = 90° - \sphericalangle DBA = 90° - 60{,}85° = 29{,}15°$$
$$\sphericalangle ADB = 180° - 50° - 60{,}85° = 69{,}15°$$
$$\sphericalangle BDC = 162° - 69{,}15° = 92{,}85°$$

Sinus-Satz im Dreieck BCD:

$$\frac{\overline{BC}}{\sin \sphericalangle BDC} = \frac{\overline{BD}}{\sin \sphericalangle DCB}$$

$$\Leftrightarrow \overline{BC} = \frac{\overline{BD} \cdot \sin \sphericalangle BDC}{\sin \sphericalangle DCB}\ m$$

$$\Leftrightarrow \overline{BC} = \frac{6{,}14 \cdot \sin 92{,}85°}{\sin 58°}\ m = 7{,}23\ m$$

$$A_{ABD} = 0{,}5 \cdot \sin 50° \cdot \overline{AB} \cdot \overline{AD}\ FE$$

$$A_{BCD} = 0{,}5 \cdot \sin 29{,}15° \cdot \overline{BD} \cdot \overline{BC}\ FE$$

$$A_{ABCD} = A_{ABD} + A_{BCD}$$

$$\Leftrightarrow A_{ABCD} = (0{,}5 \cdot \sin 50° \cdot \overline{AB} \cdot \overline{AD} + 0{,}5 \cdot \sin 29{,}15° \cdot \overline{BD} \cdot \overline{BC})\ FE$$

$$\Leftrightarrow A_{ABCD} = (0{,}5 \cdot \sin 50° \cdot 7{,}5 \cdot 7 + 0{,}5 \cdot \sin 29{,}15° \cdot 6{,}14 \cdot 7{,}23)\ FE$$

$$\Leftrightarrow A_{ABCD} = 30{,}92\ m^2$$