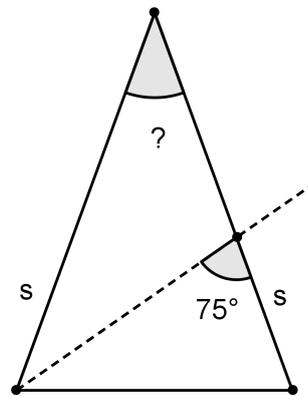
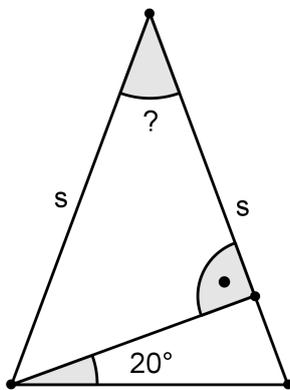
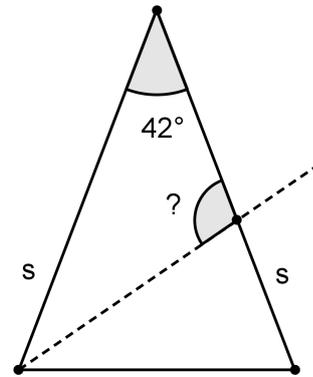
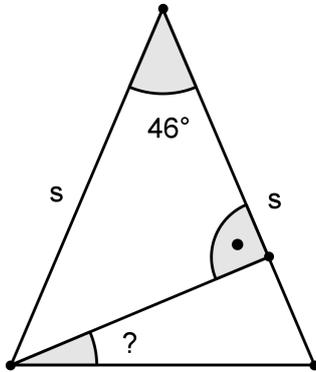


## Winkelberechnungen

### 1. Winkel am Dreieck

Berechne die markierten Winkel:

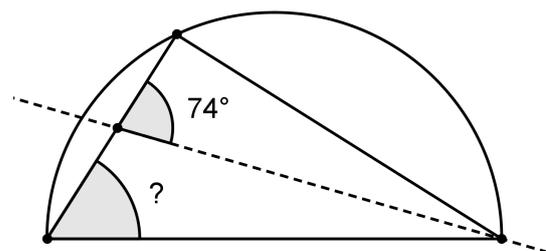
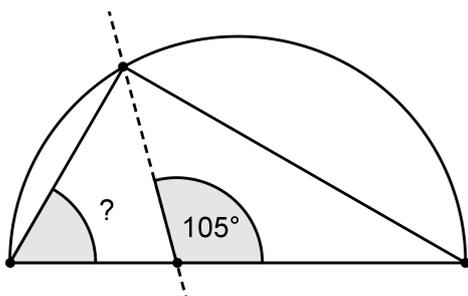
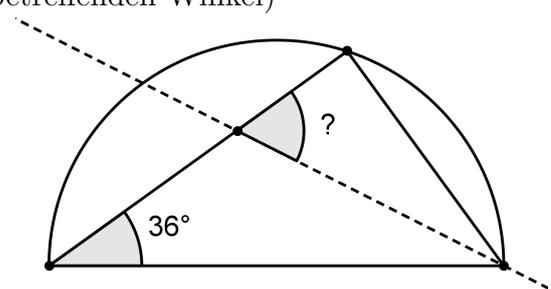
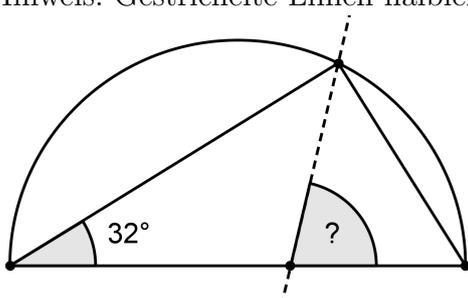
(Hinweis: Gestrichelte Linien halbieren den betreffenden Winkel)



### 2. Thaleskreis

Berechne die markierten Winkel:

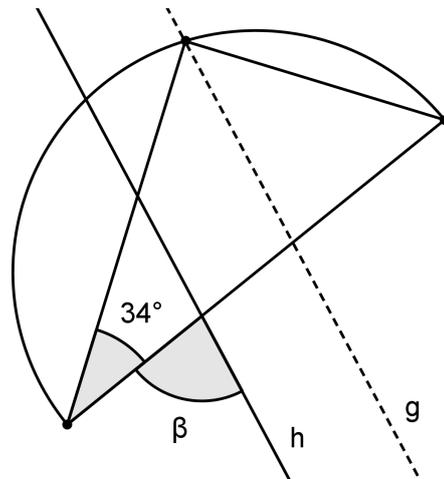
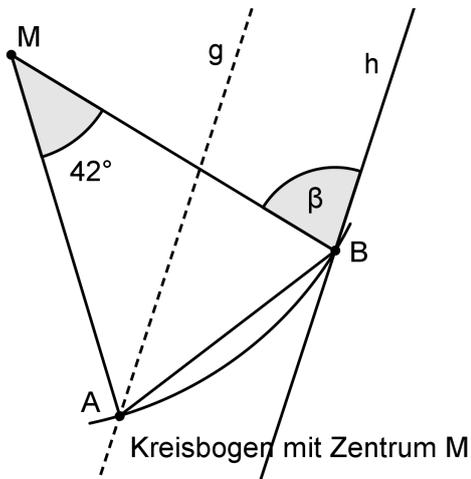
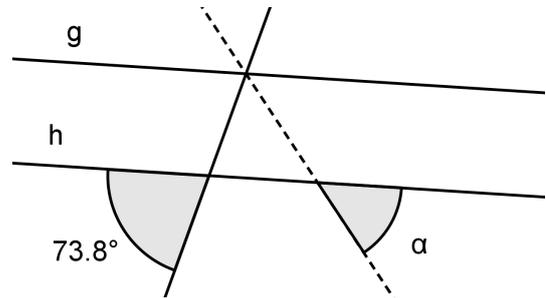
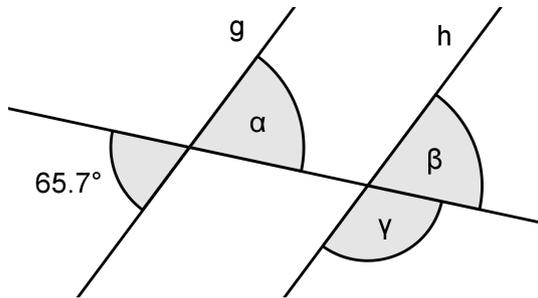
(Hinweis: Gestrichelte Linien halbieren den betreffenden Winkel)



3. Neben-, Scheitel-, Stufen- und Wechselwinkel

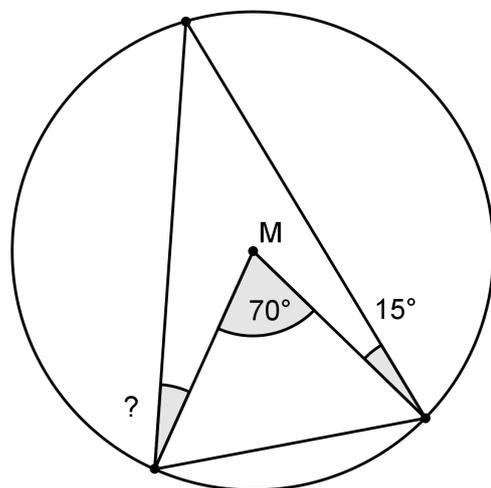
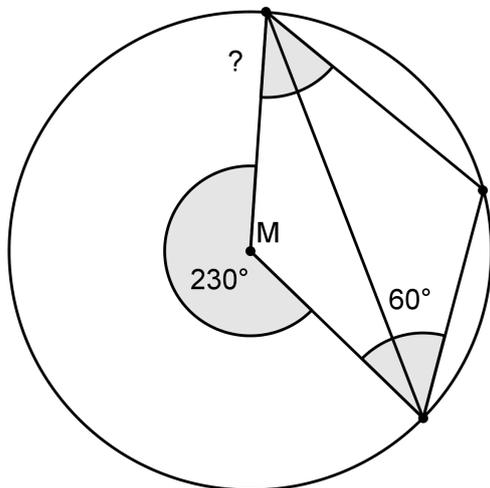
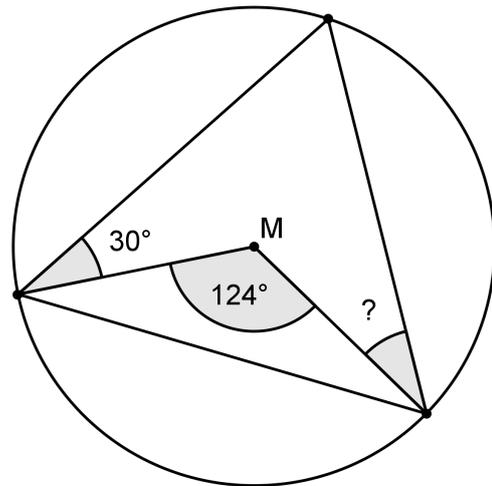
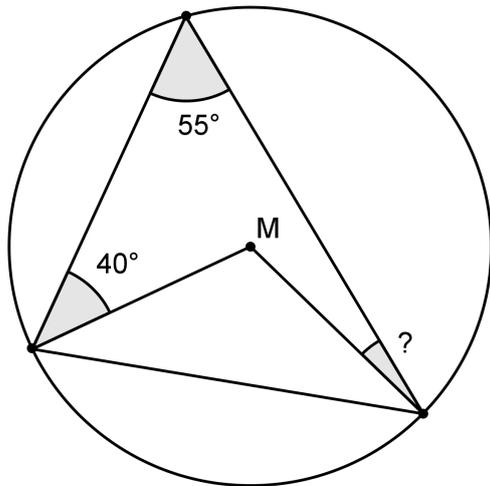
Berechne die markierten Winkel:

(Hinweis:  $g$  und  $h$  sind parallel. Gestrichelte Linien halbieren den betreffenden Winkel)



4. Peripherie- und Zentriwinkel

Berechne die markierten Winkel:



## Lösungen zu Winkelberechnungen

### 1. Winkel am Dreieck

oben links:  $23^\circ$   
oben rechts:  $103.5^\circ$   
unten links:  $40^\circ$   
unten rechts:  $40^\circ$

### 2. Thaleskreis

oben links:  $77^\circ$   
oben rechts:  $63^\circ$   
unten links:  $60^\circ$   
unten rechts:  $58^\circ$

### 3. Neben-, Scheitel-, Stufen- und Wechselwinkel

oben links:  $\alpha = 65.7^\circ$ ,  $\beta = 65.7^\circ$ ,  $\gamma = 114.3^\circ$   
oben rechts:  $\alpha = 53.1^\circ$   
unten links:  $\beta = 76.5^\circ$   
unten rechts:  $\beta = 79^\circ$

### 4. Peripherie- und Zentriwinkel

oben links:  $15^\circ$   
oben rechts:  $32^\circ$   
unten links:  $55^\circ$   
unten rechts:  $20^\circ$