

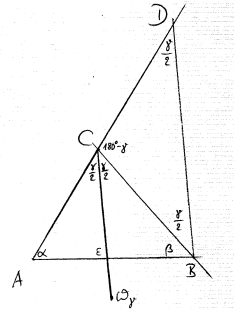
## Lösungen 10. FÜMO 2. Runde Klassenstufe 7

### Aufgabe 1

a) $m(\text{nach 5 Tagen}) = 125\text{kg} \cdot \frac{15}{100} \cdot \frac{100}{30} = 125\text{kg} \cdot \frac{1}{2} = 62,5\text{kg}$	2
b) $m(\text{Trauben anfangs}) = 3,0\text{kg} \cdot \frac{80}{100} \cdot \frac{100}{15} = 3,0\text{kg} \cdot \frac{16}{3} = 16\text{kg}$	2
<b>Summe</b>	<b>4</b>

### Aufgabe 2

a) $\varepsilon = 180^\circ - \alpha - \gamma/2$	
$\sphericalangle BDC = \frac{\gamma}{2}$ , weil $\triangle BDC$ gleichschenkelig	
$\beta' = \beta + \gamma/2 = 180^\circ - \alpha - \gamma + \gamma/2 = 180^\circ - \alpha - \gamma/2 = \varepsilon$	
$\Rightarrow BD \parallel w_\gamma$	3
b) $\alpha = \beta \Rightarrow \beta' = \sphericalangle DBA = \beta + \frac{\gamma}{2} = \frac{1}{2}(180^\circ - \gamma) + \frac{\gamma}{2} = 90^\circ - \frac{\gamma}{2} + \frac{\gamma}{2} = 90^\circ$	2
<b>Summe</b>	<b>5</b>



### Aufgabe 3

$N=2k; k \in \mathbb{N}$	
$D = G_n - U_n = (2+4+6+\dots+(2k)) - (1+3+5+\dots+(2k-1)) = k(k+1) - k^2 = k = 2001; \Rightarrow n=4002;$	2
$G_n = 2 + 4 + 6 + \dots + 4002 = 2 \cdot (1 + 2 + 3 + \dots + 2001) = 2 \cdot \frac{1}{2} \cdot 2002 \cdot 2001 = 2002 \cdot 2001;$	2
$Q = \frac{G_n}{U_n} = \frac{G_n}{G_n - D} = \frac{2002 \cdot 2001}{2002 \cdot 2001 - 2001} = \frac{2002}{2001};$	2
<b>Summe</b>	<b>6</b>