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Aufgaben des Präsenzblattes

**Aufgabe 5.1** a)  $-\frac{\sqrt{2}}{2}$ , b)  $\frac{\sqrt{3}}{2}$ , c) 1, d)  $\frac{1}{2}$ , e) 0, f)  $\sqrt{3}$ , g)  $\sqrt{3}$ .

**Aufgabe 5.2**

- a)  $\sin \alpha = \frac{1}{5}$ ,  $\cos \alpha = \frac{2\sqrt{6}}{5}$ ,  $\tan \alpha = \frac{\sqrt{6}}{12}$ ;  
 b)  $\sin \alpha = \frac{3\sqrt{5}}{7}$ ,  $\cos \alpha = \frac{2}{7}$ ,  $\tan \alpha = \frac{3\sqrt{5}}{2}$ ;  
 c)  $\sin \alpha = \frac{3}{8}$ ,  $\cos \alpha = \frac{\sqrt{55}}{8}$ ,  $\tan \alpha = \frac{3\sqrt{55}}{55}$ .

**Aufgabe 5.3**

- a)  $\alpha = \frac{\pi}{4}$ ,  $\beta = \frac{\pi}{3}$ ,  $\gamma = \frac{5\pi}{12}$ ,  $c = 1$ ,  $a = \sqrt{3} - 1$ ,  $b = \frac{\sqrt{6}}{1+\sqrt{3}} = \sqrt{6 - 3\sqrt{3}}$ ,  $F = \frac{1}{4}(3 - \sqrt{3})$ ;  
 b)  $\alpha = \frac{2\pi}{3}$ ,  $\sin \beta = \frac{\sqrt{21}}{7}$ ,  $\sin \gamma = \frac{\sqrt{21}}{14}$ ,  $c = 1$ ,  $b = 2$ ,  $a = \sqrt{7}$ ,  $F = \frac{\sqrt{3}}{2}$ .

**Aufgabe 5.4**

- a)  $x = \pm\frac{\pi}{3} + 2\pi k$ ,  $k \in \mathbb{Z}$ ;  
 b)  $x = \pm\frac{5\pi}{6} + 2\pi k$ ,  $k \in \mathbb{Z}$ .

**Aufgabe 5.5** a)  $\frac{\pi}{2}$ , b)  $-\frac{\pi}{4}$ , c)  $\frac{\pi}{4}$ , d)  $\frac{\pi}{14}$ , e)  $-\frac{\pi}{6}$ .

Aufgaben des Extrablattes

**Aufgabe 5.1**

- a)  $\sin \alpha = \frac{3}{4}$ ,  $\cos \alpha = \frac{\sqrt{7}}{4}$ ,  $\tan \alpha = \frac{3\sqrt{7}}{7}$ ;  
 b)  $\sin \alpha = \frac{\sqrt{35}}{6}$ ,  $\cos \alpha = \frac{1}{6}$ ,  $\tan \alpha = \sqrt{35}$ ;  
 c)  $\sin \alpha = \frac{1}{8}$ ,  $\cos \alpha = \frac{3\sqrt{7}}{8}$ ,  $\tan \alpha = \frac{\sqrt{7}}{21}$ ;  
 d)  $\sin \alpha = \frac{\sqrt{5}}{3}$ ,  $\cos \alpha = \frac{2}{3}$ ,  $\tan \alpha = \frac{\sqrt{5}}{2}$ ;  
 e)  $\sin \alpha = \frac{\sqrt{7}}{3}$ ,  $\cos \alpha = \frac{\sqrt{2}}{3}$ ,  $\tan \alpha = \frac{\sqrt{14}}{2}$ ;  
 f)  $\sin \alpha = \frac{\sqrt{10}}{4}$ ,  $\cos \alpha = \frac{\sqrt{6}}{4}$ ,  $\tan \alpha = \frac{\sqrt{15}}{3}$ .

**Aufgabe 5.2**

- a)  $a = b = c = \sqrt{2}$ ,  $\alpha = \beta = \gamma = \frac{\pi}{3}$ ,  $F = \frac{\sqrt{3}}{2}$ ;  
 b) ?  
 c)  $a = 5$ ,  $b = 12$ ,  $c = 13$ ,  $\gamma = \frac{\pi}{2}$ ,  $\sin \alpha = \frac{5}{13}$ ,  $\sin \beta = \frac{12}{13}$ ,  $F = 30$ ;  
 f#)  $\gamma = \frac{\pi}{2}$ ,  $\alpha = \alpha$ ,  $\beta = \frac{\pi}{2} - \alpha$ ,  $a = 11$ ,  $b = \frac{11}{\sin \alpha}$ ,  $c = \frac{11}{\tan \alpha}$ ,  $F = \frac{121}{2 \tan \alpha}$ .

**Aufgabe 5.3**

- a)  $x = -\frac{\pi}{3} + \pi k$ ,  $k \in \mathbb{Z}$ ;  
 b)  $x = \pm\frac{\pi}{2} + 2\pi k$ ,  $k \in \mathbb{Z}$ .

**Aufgabe 5.4** a)  $\frac{\pi}{3}$ , b)  $\frac{5\pi}{6}$ , c)  $\frac{2\pi}{3}$ , d)  $\frac{5\pi}{4}$ , e)  $-\frac{\pi}{10}$ , f)  $-\frac{\pi}{5}$ .