Bogenmaß und Einheitskreis

Stufe 3: trigonometrische Gleichungen

Name: _____ Datum: _____

Gib alle Lösungen im angegebenen Intervall an. Gerundete Lösungen auf zwei Nachkommastellen.

1) $\tan x = -1{,}8,\ x \in [0^\circ; 360^\circ)$ _____

2) $2\cos x + 1 = 0,\ x \in [0^\circ; 360^\circ)$ _____

3) $\cos x = 0,\ x \in [0; 2\pi)$ _____

4) $\cos x = 1,\ x \in [0^\circ; 360^\circ)$ _____

5) $\sin x = -\frac{1}{2},\ x \in [0; 2\pi)$ _____

6) $\cos x = 0{,}65,\ x \in [0; 2\pi)$ _____

7) $\sin x = 0{,}6,\ x \in [0; 2\pi)$ _____

8) $\sin x = -1,\ x \in [0; 2\pi)$ _____

9) $2\sin x + \sqrt{2} = 0,\ x \in [0^\circ; 360^\circ)$ _____

10) $2\sin x + \sqrt{3} = 0,\ x \in [0; 2\pi)$ _____

11) $\sin x = 1,\ x \in [0^\circ; 360^\circ)$ _____

12) $\cos x = \frac{\sqrt{2}}{2},\ x \in [0^\circ; 360^\circ)$ _____

13) $2\cos x - \sqrt{2} = 0,\ x \in [0^\circ; 360^\circ)$ _____

14) $\sin x = -1,\ x \in [0^\circ; 360^\circ)$ _____

15) $\sin x = \frac{\sqrt{3}}{2},\ x \in [0^\circ; 360^\circ)$ _____

16) $2\cos x + \sqrt{2} = 0,\ x \in [0; 2\pi)$ _____

17) $\sin x = 0{,}35,\ x \in [0^\circ; 360^\circ)$ _____

18) $\sin x = \frac{1}{2},\ x \in [0; 2\pi)$ _____

19) $2\cos x - 1 = 0,\ x \in [0^\circ; 360^\circ)$ _____

20) $2\cos x + \sqrt{3} = 0,\ x \in [0^\circ; 360^\circ)$ _____

21) $\tan x = \frac{\sqrt{3}}{3},\ x \in [0; 2\pi)$ _____

22) $\sin x = \frac{\sqrt{2}}{2},\ x \in [0^\circ; 360^\circ)$ _____

23) $\sin x = 1{,}2,\ x \in [0^\circ; 360^\circ)$ _____

24) $\sin x = -0{,}85,\ x \in [0^\circ; 360^\circ)$ _____

25) $\tan x = -1{,}1,\ x \in [0^\circ; 360^\circ)$ _____

26) $\cos x = 0,\ x \in [0^\circ; 360^\circ)$ _____

Lösungen: Bogenmaß und Einheitskreis

Stufe 3: trigonometrische Gleichungen

1) $x_1 \approx 119{,}05^\circ,\ x_2 \approx 299{,}05^\circ$

2) $x_1 = 120^\circ,\ x_2 = 240^\circ$

3) $x_1 = \frac{\pi}{2},\ x_2 = \frac{3\pi}{2}$

4) $x = 0^\circ$

5) $x_1 = \frac{7\pi}{6},\ x_2 = \frac{11\pi}{6}$

6) $x_1 \approx 0{,}86,\ x_2 \approx 5{,}42$

7) $x_1 \approx 0{,}64,\ x_2 \approx 2{,}5$

8) $x = \frac{3\pi}{2}$

9) $x_1 = 225^\circ,\ x_2 = 315^\circ$

10) $x_1 = \frac{4\pi}{3},\ x_2 = \frac{5\pi}{3}$

11) $x = 90^\circ$

12) $x_1 = 45^\circ,\ x_2 = 315^\circ$

13) $x_1 = 45^\circ,\ x_2 = 315^\circ$

14) $x = 270^\circ$

15) $x_1 = 60^\circ,\ x_2 = 120^\circ$

16) $x_1 = \frac{3\pi}{4},\ x_2 = \frac{5\pi}{4}$

17) $x_1 \approx 20{,}49^\circ,\ x_2 \approx 159{,}51^\circ$

18) $x_1 = \frac{\pi}{6},\ x_2 = \frac{5\pi}{6}$

19) $x_1 = 60^\circ,\ x_2 = 300^\circ$

20) $x_1 = 150^\circ,\ x_2 = 210^\circ$

21) $x_1 = \frac{\pi}{6},\ x_2 = \frac{7\pi}{6}$

22) $x_1 = 45^\circ,\ x_2 = 135^\circ$

23) keine Lösung

24) $x_1 \approx 238{,}21^\circ,\ x_2 \approx 301{,}79^\circ$

25) $x_1 \approx 132{,}27^\circ,\ x_2 \approx 312{,}27^\circ$

26) $x_1 = 90^\circ,\ x_2 = 270^\circ$