2016/2017

Vyřešte v $\mathbb{R}$ rovnici, proveďte zkoušku

1. $\dfrac{1}{\cos^2 x} - \operatorname{tg}^2 x = 1$

2. $\dfrac{1+\sin x}{\cos x} + \dfrac{\cos x}{1-\sin x} = \cos x$

3. $\dfrac{1}{\sin x} - \operatorname{cotg} x = 1$

4. $\operatorname{tg} x + \operatorname{cotg} x = 2$

5. $\cos 2x + 4\sin^2 x = 3$

6. $\cos x = \dfrac{\sin 2x}{2}$

7. $\sin 2x = -\operatorname{cotg} x$

8. $\sin^3 x + \cos^3 x = 1$

9. $\sin \dfrac{x}{2} = \cos x$

10. $\dfrac{\sin x}{1-\cos 2x} = \cos x$

11. $4\cos 3x + 5\sin^2 3x = -4$

12. $\dfrac{1+\sin x}{\cos x} + \dfrac{\cos x}{1+\sin x} = 2\sin x$

13. $\cos 2x - 9\sin x = 8$

14. $1 - \sin x = \cos 2x$

15. $2\cos \dfrac{x}{2} = \sin x$

16. $\cos 2x - \sin 2x = 1$

17. $\cos x - \operatorname{tg}^2 x = 1$

18. $\cos \dfrac{x}{2} = \sin x$

19. $\sin\left(x + \dfrac{\pi}{6}\right) + \sin\left(x - \dfrac{\pi}{6}\right) = \dfrac{\sqrt{3}}{2}$

20. $\cos\left(x + \dfrac{\pi}{3}\right) + \cos\left(x - \dfrac{\pi}{6}\right) = 1$

21. $2\cos 2x = \sin 4x$

22. $\sin^4 x - \cos^4 x = 1$

23. $\cos^2 x + 3\sin x = 1$

24. $\dfrac{\sin x}{1-\cos x} + \dfrac{1+\cos x}{\sin x} = 2$

25. $\operatorname{cotg} 2x + \operatorname{tg} x = 1$

2016/2017

Vyřešte v $\mathbb{R}$ rovnici, proveďte zkoušku

1. $x \neq (2k+1)\,\frac{\pi}{2},\ k \in \mathbb{Z},$

2. nemá řešení,

3. $x = \frac{\pi}{2} + 2k\pi,\ k \in \mathbb{Z},$

4. $x = \frac{\pi}{4} + k\pi,\ k \in \mathbb{Z},$

5. $x = \frac{\pi}{2} + k\pi; k \in \mathbb{Z};$

6. $x = (2k+1)\,\frac{\pi}{2},\ k \in \mathbb{Z},$

7. $x = (2k+1)\,\frac{\pi}{2},\ k \in \mathbb{Z},$

8. $x_1 = \frac{\pi}{2} + 2k\pi,\ x_2 = 2k\pi,\ k \in \mathbb{Z},$

9. $x_1 = \frac{\pi}{3} + 4k\pi,\ x_2 = \frac{5\pi}{3} + 4k\pi,\ x_3 = -\pi + 4k\pi,\ k \in \mathbb{Z},$

10. $x = \frac{\pi}{4} + k\pi,$

11. $x = (2k+1)\,\frac{\pi}{3},\ k \in \mathbb{Z}$

12. nemá řešení,

13. $x = -\frac{\pi}{2} + 2k\pi; k \in \mathbb{Z};$

14. $x_1 = \frac{\pi}{6} + 2k\pi,\ x_2 = \frac{5\pi}{6} + 2k\pi,\ x_3 = k\pi,\ k \in \mathbb{Z},$

15. $x = (2k+1)\,\pi,\ k \in \mathbb{Z},$

16. $x_1 = \frac{\pi}{4} + k\pi; k \in \mathbb{Z}, x_2 = k\pi; k \in \mathbb{Z};$

17. $x = 2k\pi,\ k \in \mathbb{Z},$

18. $x_1 = \frac{\pi}{3} + 4k\pi,\ x_2 = \frac{5\pi}{3} + 4k\pi,\ x_3 = (2k+1)\,\pi,\ k \in \mathbb{Z},$

19. $x_1 = \frac{\pi}{6} + 2k\pi,\ x_2 = \frac{5\pi}{6} + 2k\pi,\ k \in \mathbb{Z},$

20. $x_1 = \frac{\pi}{6} + 2k\pi,\ x_2 = -\frac{\pi}{3} + 2k\pi,\ k \in \mathbb{Z},$

21. $x = (2k+1)\,\frac{\pi}{4},\ k \in \mathbb{Z},$

22. $x = \frac{\pi}{2} + k\pi,\ k \in \mathbb{Z},$

23. $x = k\pi; k \in \mathbb{Z};$

24. $x = \frac{\pi}{2} + k\pi,$

25. $x = \frac{\pi}{4} + k\pi,\ k \in \mathbb{Z},$