

- 8.001. $\cos 3x - \sin x = \sqrt{3} (\cos x - \sin 3x)$.
- 8.002. $7 + 4 \sin x \cos x + 1,5 (\operatorname{tg} x + \operatorname{ctg} x) = 0$.
- 8.003. $\frac{4 \operatorname{ctg} x}{1 + \operatorname{ctg}^2 x} + \sin^2 2x + 1 = 0$.
- 8.004. $\frac{\sin^2 2x - 4 \sin^2 x}{\sin^2 2x + 4 \sin^2 x - 4} + 1 = 2 \operatorname{tg}^2 x$.
- 8.007. $\operatorname{tg} 3t - \operatorname{tg} t - 4 \sin t = 0$.
- 8.009. $\operatorname{ctg} t - \sin t = 2 \sin^2 \frac{t}{2}$.
- 8.011. $\sin \left(\frac{\pi}{2} + 2x \right) \operatorname{ctg} 3x + \sin (\pi + 2x) - \sqrt{2} \cos 5x = 0$.
- 8.012. $\sin x \cos 2x + \cos x \cos 4x = \sin \left(\frac{\pi}{4} + 2x \right) \sin \left(\frac{\pi}{4} - 3x \right)$.
- 8.013. $\sin 2x = \cos^4 \frac{x}{2} - \sin^4 \frac{x}{2}$.
- 8.014. $(1 + \cos 4x) \sin 2x = \cos^2 2x$.
- 8.015. $\sin^2 2z + \sin^2 3z + \sin^2 4z + \sin^2 5z = 2$.
- 8.020. $1 - \sin 3x = \left(\sin \frac{x}{2} - \cos \frac{x}{2} \right)^2$.
- 8.021. $2 \operatorname{ctg}^2 x \cdot \cos^2 x + 4 \cos^2 x - \operatorname{ctg}^2 x - 2 = 0$.
- 8.022. $2 \sin^3 x + 2 \sin^2 x \cos x - \sin x \cos^2 x - \cos^3 x = 0$.
- 8.023. $\sin 7x + \sin 9x = 2 \left[\cos^2 \left(\frac{\pi}{4} - x \right) - \cos^2 \left(\frac{\pi}{4} + 2x \right) \right]$.
- 8.024. $\operatorname{tg} x + \operatorname{tg} 2x - \operatorname{tg} 3x = 0$.
- 8.030. $2 + \operatorname{tg} x \cdot \operatorname{ctg} \frac{x}{2} + \operatorname{ctg} x \cdot \operatorname{tg} \frac{x}{2} = 0$.
- 8.031. $\sin 2x + \sin (\pi - 8x) = \sqrt{2} \cos 3x$.
- 8.032. $\frac{1}{2} (\cos 5x + \cos 7x) - \cos^2 2x + \sin^2 3x = 0$.
- 8.033. $2 (\cos 4x - \sin x \cdot \cos 3x) = \sin 4x + \sin 2x$.
- 8.034. $\sin x \cos x \cos 2x \cos 8x = \frac{1}{4} \sin 12x$.

- 8.035. $3 \sin^2 2x + 7 \cos 2x - 3 = 0.$
- 8.037. $\sin 3x \cdot \cos 3x = \sin 2x.$
- 8.038. $\cos 2x - 5 \sin x - 3 = 0.$
- 8.039. $3 \sin 2x + 2 \cos 2x = 3.$
- 8.040. $\operatorname{ctg} \left(\frac{3\pi}{2} - x \right) - \operatorname{ctg}^2 x + \frac{1 + \cos 2x}{\sin^2 x} = 0.$
- 8.041. $\cos 9x - \cos 7x + \cos 3x - \cos x = 0.$
- 8.042. $2 \left(\operatorname{tg} \frac{t}{2} - 1 \right) = \cos t.$
- 8.043. $\sin 3z - \cos 3z = \sqrt{\frac{3}{2}}.$
- 8.044. $\sqrt{3} \sin 2x + \cos 5x - \cos 9x = 0.$
- 8.045. $2 \cos^2 x + 5 \sin x - 4 = 0.$
- 8.046. $\sin \frac{z}{2} \cos \frac{3z}{2} - \frac{1}{\sqrt{3}} \sin 2z = \sin \frac{3z}{2} \cos \frac{z}{2}.$
- 8.047. $8 \cos^4 x - 8 \cos^2 x - \cos x + 1 = 0.$
- 8.048. $\sin \left(\frac{\pi}{4} + 5x \right) \cos \left(\frac{\pi}{4} + 2x \right) = \sin \left(\frac{\pi}{4} + x \right) \sin \left(\frac{\pi}{4} - 6x \right)$
- 8.049. $\cos 3x = 2 \sin \left(\frac{3\pi}{2} + x \right).$
- 8.050. $5(1 + \cos x) = 2 + \sin^4 x - \cos^4 x.$
- 8.051. $1 + \sin 2x = (\cos 3x + \sin 3x)^2.$
- 8.052. $\sin 3x = 2 \cos \left(\frac{\pi}{2} - x \right).$
- 8.053. $\cos 4x + 2 \sin^2 x = 0.$
- 8.054. $\sin x + \sin 7x - \cos 5x + \cos (3x - 2\pi) = 0.$
- 8.055. $\cos^4 2x + 6 \cos^2 2x = \frac{25}{16}.$
- 8.056. $1 + \cos t + \cos 2t + \cos 3t = 0.$
- 8.057. $\cos 2x = \sqrt{2} (\cos x - \sin x).$
- 8.058. $1 + \cos 7x = \left(\sin \frac{3x}{2} - \cos \frac{3x}{2} \right)^2.$
- 8.059. $2 \operatorname{tg}^4 3x - 3 \operatorname{tg}^2 3x + 1 = 0.$
- 8.060. $\sin 2x - \sin 3x + \sin 8x = \cos \left(7x + \frac{3\pi}{2} \right).$

- 8.065. $\sin 2z + \cos 2z = \sqrt{2} \sin 3z.$
- 8.066. $6 \sin^2 x + 2 \sin^2 2x = 5.$
- 8.067. $\sin 3x + \sin 5x = 2 (\cos^2 2x - \sin^2 3x).$
- 8.070. $3 \sin 5z - 2 \cos 5z = 3.$
- 8.071. $4 \sin 3z + \frac{1}{3} \cos 3z = 3.$
- 8.072. $(\cos 6x - 1) \operatorname{ctg} 3x = \sin 3x.$
- 8.074. $1 - \cos(\pi + x) - \sin \frac{3\pi + x}{2} = 0.$
- 8.076. $\sin x - \sin 2x + \sin 5x + \sin 8x = 0.$
- 8.077. $2 \sin z - \cos z = \frac{2}{5}.$
- 8.078. $\cos\left(\frac{\pi}{2} + 5x\right) + \sin x = 2 \cos 3x.$
- 8.135. $\sin^4 x + \cos^4 x = \cos^2 2x + 0,25.$
- 8.136. $\sin 2z - 4 \cos 2z = 4.$
- 8.137. $3 + 2 \sin 2x = \operatorname{tg} x + \operatorname{ctg} x.$
- 8.143. $\cos 4x + 2 \cos^2 x = 1.$
- 8.144. $\sin^4 x + \cos^4 x = \frac{5}{8}.$
- 8.145. $\cos x - \cos 2x = \sin 3x.$
- 8.149. $\cos x - \cos 3x = \sin 2x.$
- 8.150. $\sqrt{2} (1 + \cos x) = \operatorname{ctg} \frac{x}{2}.$
- 8.152. $\sin^2 3x = 3 \cos^2 3x.$
- 8.153. $\sin 3x + \sin x = 4 \sin^3 x.$
- 8.154. $\sin 6x + \sin 2x = \frac{1}{2} \operatorname{tg} 2x.$

8.001. $x_1 = \frac{\pi}{8}(1+4k)$, $x_2 = \frac{\pi}{12}(1+12k)$. 8.002. $x = (-1)^{k-1} \cdot \frac{\pi}{12} + \frac{\pi k}{2}$. 8.003. $x = \frac{\pi}{4}(4k-1)$.
 8.004. $x = \frac{\pi}{4}(2k+1)$. 8.007. $t_1 = \pi k$, $t_2 = \pm \frac{\pi}{9} + \frac{2\pi k}{3}$. 8.009. $t_1 = \frac{\pi}{4}(4k+1)$, $t_2 = \frac{\pi}{2}(4k-1)$.
 8.011. $x_1 = \frac{\pi}{10}(2k+1)$, $x_2 = (-1)^k \frac{\pi}{12} + \frac{\pi k}{3}$. 8.012. $x = \frac{\pi}{12}(4k-1)$.
 8.013. $x_1 = \frac{\pi}{2}(2k+1)$, $x_2 = (-1)^k \frac{\pi}{6} + \pi k$. 8.014. $x_1 = \frac{\pi}{4}(2k+1)$, $x_2 = (-1)^k \frac{\pi}{12} + \frac{\pi k}{2}$.
 8.015. $z_1 = \frac{\pi}{4}(2k+1)$, $z_2 = \frac{\pi}{14}(2k+1)$.
 8.020. $x_1 = \pi k$, $x_2 = \frac{\pi}{4}(2k+1)$.
 8.021. $x = \frac{\pi}{4}(2k+1)$. 8.022. $x_1 = \frac{\pi}{4}(4k-1)$, $x_2 = \pm \operatorname{arctg} \frac{\sqrt{2}}{2} + \pi k$.
 8.023. $x_1 = \frac{\pi}{2}(2k+1)$, $x_2 = \frac{2\pi k}{5}$, $x_3 = \frac{\pi}{11}(2k+1)$. 8.024. $x = \frac{\pi k}{3}$.
 8.030. $x = \frac{\pi}{3}(6k \pm 2)$.
 8.031. $x_1 = \frac{\pi}{6}(2k+1)$, $x_2 = (-1)^k \frac{\pi}{20} + \frac{\pi k}{5}$. 8.032. $x_1 = \frac{\pi}{2}(2k+1)$,
 $x_2 = \frac{2\pi k}{11}$. 8.033. $x = \frac{\pi}{16}(4k+1)$. 8.034. $x = \frac{\pi k}{8}$. 8.035. $x = \frac{\pi}{4}(2k+1)$. 8.036. $x_1 =$
 $= \frac{\pi}{16}(2k+1)$, $x_2 = (-1)^{k+1} \frac{\pi}{12} + \frac{\pi k}{3}$. 8.037. $x_1 = \frac{\pi k}{2}$, $x_2 = \frac{\pi}{12}(6k \pm 1)$. 8.038. $x =$
 $= (-1)^{k+1} \frac{\pi}{6} + \frac{\pi}{k}$. 8.039. $x_1 = \frac{\pi}{4}(4k+1)$, $x_2 = \operatorname{arctg} 5 + \pi k$. 8.040. $x = \frac{\pi}{4}(4k+3)$.
 8.041. $x_1 = \frac{\pi k}{5}$, $x_2 = \frac{\pi}{6}(2k+1)$. 8.042. $t = \frac{\pi}{2}(4k+1)$. 8.043. $z_1 = 35^\circ + 120^\circ \cdot k$,
 $z_2 = 55^\circ + 120^\circ \cdot k$. 8.044. $x_1 = \frac{\pi k}{2}$, $x_2 = (-1)^{k+1} \frac{\pi}{21} + \frac{\pi k}{7}$. 8.045. $x = (-1)^k \frac{\pi}{6} + \pi k$.
 8.046. $z_1 = \pi k$, $z_2 = \pm \frac{5\pi}{6} + 2\pi k$. 8.047. $x_1 = \frac{2\pi k}{5}$, $x_2 = \frac{2\pi k}{3}$. 8.048. $x = \frac{\pi k}{4}$. 8.049.
 $x_1 = \frac{\pi}{2}(2k+1)$, $x_2 = \pm \frac{\pi}{3} + \pi k$. 8.050. $x = \pm \frac{2\pi}{3} + 2\pi k$. 8.051. $x_1 = \frac{\pi k}{2}$, $x_2 =$
 $= \frac{\pi}{8}(2k+1)$. 8.052. $x_1 = \pi k$, $x_2 = \pm \frac{\pi}{6} + \pi k$. 8.053. $x_1 = \frac{\pi}{4}(2k+1)$, $x_2 = \pm \frac{\pi}{6} + \pi k$.
 8.054. $x_1 = \frac{\pi k}{4}$, $x_2 = \frac{\pi}{8}(3+4k)$. 8.055. $x = \pm \frac{\pi}{6} + \frac{\pi k}{2}$. 8.056. $t_1 = \frac{\pi}{2}(2k+1)$,
 $t_2 = \frac{\pi}{3}(2k+1)$. 8.057. $x = \frac{\pi}{4} + \pi k$. 8.058. $x_1 = \frac{\pi}{8}(1+4k)$, $x_2 = \frac{\pi}{20}(3+4k)$. 8.059.
 $x_1 = \pm \frac{\pi}{12} + \frac{\pi k}{3}$, $x_2 = \pm \frac{1}{3} \operatorname{arctg} \frac{\sqrt{2}}{2} + \frac{\pi k}{3}$. 8.060. $x = \frac{\pi k}{5}$.
 8.065. $z_1 = \frac{\pi}{4}(8k+1)$, $z_2 = \frac{\pi}{20}(8k+3)$. 8.066. $x = \frac{\pi}{4}(2k+1)$. 8.067. $x_1 = \frac{\pi}{2}(2k+1)$,
 $x_2 = \frac{\pi}{18}(4k+1)$. 8.068. $x_1 = \frac{\pi}{2}(2k+1)$, $x_2 = \frac{\pi}{4}(4k+1)$. 8.069. $x_1 = \frac{\pi}{4}(2k+1)$,
 $x_2 = \frac{\pi}{2}(4k-1)$. 8.070. $z_1 = \frac{\pi}{10} + \frac{2\pi k}{5}$, $z_2 = \frac{2}{5} \operatorname{arctg} 5 + \frac{2\pi k}{5}$. 8.071. $z_1 = \frac{2}{3} \operatorname{arctg} 2 +$
 $+ \frac{2\pi k}{3}$, $z_2 = \frac{2}{3} \operatorname{arctg} \frac{2}{5} + \frac{2\pi k}{3}$. 8.072. $x = \pm \frac{2}{9} \pi + \frac{2}{3} \pi k$.
 8.074. $x_1 = \pi(2k+1)$, $x_2 = \pm \frac{4}{3} \pi + 4\pi k$. 8.076. $x_1 =$
 $= \frac{\pi k}{3}$, $x_2 = \frac{\pi}{7}(2k+1)$. 8.077. $z_1 = 2 \operatorname{arctg} 3 + 2\pi k$, $z_2 = -2 \operatorname{arctg} 7 + 2\pi k$. 8.078.
 $x_1 = \frac{\pi}{6}(2k+1)$, $x_2 = \frac{\pi}{4}(4k-1)$.

8.135. $x = \frac{\pi}{8} (2k + 1)$. 8.136. $z_1 = \frac{\pi}{2} (2k + 1)$, $z_2 = \operatorname{arctg} 4 + \pi k$. 8.137. $x = (-1)^k \cdot \frac{\pi}{12} + \frac{\pi k}{2}$.
 8.143. $x = \frac{\pi}{6} (2k + 1)$. 8.144. $x = \frac{\pi}{6} (3k \pm 1)$. 8.145. $x_1 = \frac{2\pi k}{3}$, $x_2 = \frac{\pi}{2} (4k - 1)$, $x_3 = \frac{\pi}{4} (4k + 1)$.
 8.149. $x_1 = \frac{\pi k}{2}$, $x_2 = (-1)^k \cdot \frac{\pi}{6} + \pi k$. 8.150. $x_1 = \pi (2k + 1)$, $x_2 = (-1)^k \cdot \frac{\pi}{4} + \pi k$.
 8.152. $x = \frac{\pi}{9} (3k \pm 1)$. 8.153. $x_1 = \pi k$, $x_2 = \frac{\pi}{4} (2k + 1)$. 8.154. $x_1 = \frac{\pi k}{2}$, $x_2 = \frac{\pi}{6} (6k \pm 1)$.