

三角関数表

θ	0°	3°	6°	9°
$\sin \theta$	0	$\frac{(\sqrt{3}+1)(\sqrt{5}-1)-(\sqrt{3}-1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$	$\frac{-\sqrt{5}-1+\sqrt{30-6\sqrt{5}}}{8}$	$\frac{\sqrt{5}+1-\sqrt{10-2\sqrt{5}}}{4\sqrt{2}}$
$\cos \theta$	1	$\frac{(\sqrt{3}-1)(\sqrt{5}-1)+(\sqrt{3}+1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$	$\frac{\sqrt{15}+\sqrt{3}+\sqrt{10-2\sqrt{5}}}{8}$	$\frac{\sqrt{5}+1+\sqrt{10-2\sqrt{5}}}{4\sqrt{2}}$
$\tan \theta$	0	$\frac{-\sqrt{15}+2\sqrt{5}-3\sqrt{3}+4+(2\sqrt{15}-3\sqrt{5}+4\sqrt{3}-7)\sqrt{5-2\sqrt{5}}}{2}$	$\frac{-\sqrt{15}+\sqrt{3}+\sqrt{10-2\sqrt{5}}}{2}$	$\sqrt{5}+1-\sqrt{5+2\sqrt{5}}$

θ	12°	15°	18°	21°
$\sin \theta$	$\frac{-\sqrt{15}+\sqrt{3}+\sqrt{10+2\sqrt{5}}}{8}$	$\frac{\sqrt{6}-\sqrt{2}}{4}$	$\frac{\sqrt{5}-1}{4}$	$\frac{-(\sqrt{3}-1)(\sqrt{5}+1)+(\sqrt{3}+1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$
$\cos \theta$	$\frac{\sqrt{5}-1+\sqrt{30+6\sqrt{5}}}{8}$	$\frac{\sqrt{6}+\sqrt{2}}{4}$	$\frac{\sqrt{10+2\sqrt{5}}}{4}$	$\frac{(\sqrt{3}+1)(\sqrt{5}+1)+(\sqrt{3}-1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$
$\tan \theta$	$\frac{-\sqrt{15}+3\sqrt{3}-(\sqrt{5}-1)\sqrt{5-2\sqrt{5}}}{2}$	$2-\sqrt{3}$	$\frac{\sqrt{5-2\sqrt{5}}}{\sqrt{5}}$	$\frac{\sqrt{15}+2\sqrt{5}-3\sqrt{3}-4+(2\sqrt{3}-\sqrt{5}+1)\sqrt{5-2\sqrt{5}}}{2}$

θ	24°	27°	30°	33°
$\sin \theta$	$\frac{\sqrt{15}+\sqrt{3}-\sqrt{10-2\sqrt{5}}}{8}$	$\frac{-\sqrt{5}+1+\sqrt{10+2\sqrt{5}}}{4\sqrt{2}}$	$\frac{1}{2}$	$\frac{(\sqrt{3}+1)(\sqrt{5}-1)+(\sqrt{3}-1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$
$\cos \theta$	$\frac{\sqrt{5}+1+\sqrt{30-6\sqrt{5}}}{8}$	$\frac{\sqrt{5}-1+\sqrt{10+2\sqrt{5}}}{4\sqrt{2}}$	$\frac{\sqrt{3}}{2}$	$\frac{-(\sqrt{3}-1)(\sqrt{5}-1)+(\sqrt{3}+1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$
$\tan \theta$	$\frac{-\sqrt{15}-3\sqrt{3}+(\sqrt{5}+1)\sqrt{5+2\sqrt{5}}}{2}$	$\sqrt{5}-1-\sqrt{5-2\sqrt{5}}$	$\frac{1}{\sqrt{3}}$	$\frac{\sqrt{15}-2\sqrt{5}+3\sqrt{3}-4+(2\sqrt{15}-3\sqrt{5}+4\sqrt{3}-7)\sqrt{5-2\sqrt{5}}}{2}$

θ	36°	39°	42°	45°
$\sin \theta$	$\frac{\sqrt{10-2\sqrt{5}}}{4}$	$\frac{(\sqrt{3}+1)(\sqrt{5}+1)-(\sqrt{3}-1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$	$\frac{-\sqrt{5}+1+\sqrt{30+6\sqrt{5}}}{8}$	$\frac{1}{\sqrt{2}}$
$\cos \theta$	$\frac{\sqrt{5}+1}{4}$	$\frac{(\sqrt{3}-1)(\sqrt{5}+1)+(\sqrt{3}+1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$	$\frac{\sqrt{15}-\sqrt{3}+\sqrt{10+2\sqrt{5}}}{8}$	$\frac{1}{\sqrt{2}}$
$\tan \theta$	$\sqrt{5-2\sqrt{5}}$	$\frac{\sqrt{15}-2\sqrt{5}-3\sqrt{3}+4+(2\sqrt{15}-3\sqrt{5}-4\sqrt{3}+7)\sqrt{5+2\sqrt{5}}}{2}$	$\frac{\sqrt{15}+\sqrt{3}-\sqrt{10+2\sqrt{5}}}{2}$	1

θ	48°	51°	54°	57°
$\sin \theta$	$\frac{\sqrt{15}-\sqrt{3}+\sqrt{10+2\sqrt{5}}}{8}$	$\frac{(\sqrt{3}-1)(\sqrt{5}+1)+(\sqrt{3}+1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$	$\frac{\sqrt{5}+1}{4}$	$\frac{-(\sqrt{3}-1)(\sqrt{5}-1)+(\sqrt{3}+1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$
$\cos \theta$	$\frac{-\sqrt{5}+1+\sqrt{30+6\sqrt{5}}}{8}$	$\frac{(\sqrt{3}+1)(\sqrt{5}+1)-(\sqrt{3}-1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$	$\frac{\sqrt{10-2\sqrt{5}}}{4}$	$\frac{(\sqrt{3}+1)(\sqrt{5}-1)+(\sqrt{3}-1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$
$\tan \theta$	$\frac{-\sqrt{15}+3\sqrt{3}+(\sqrt{5}-1)\sqrt{5-2\sqrt{5}}}{2}$	$\frac{-\sqrt{15}-2\sqrt{5}+3\sqrt{3}+4+(2\sqrt{3}-\sqrt{5}+1)\sqrt{5-2\sqrt{5}}}{2}$	$\frac{\sqrt{5+2\sqrt{5}}}{\sqrt{5}}$	$\frac{-\sqrt{15}-2\sqrt{5}-3\sqrt{3}-4+(2\sqrt{15}+3\sqrt{5}+4\sqrt{3}+7)\sqrt{5-2\sqrt{5}}}{2}$

θ	60°	63°	66°	69°
$\sin \theta$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{5}-1+\sqrt{10+2\sqrt{5}}}{4\sqrt{2}}$	$\frac{\sqrt{5}+1+\sqrt{30-6\sqrt{5}}}{8}$	$\frac{(\sqrt{3}+1)(\sqrt{5}+1)+(\sqrt{3}-1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$
$\cos \theta$	$\frac{1}{2}$	$\frac{-\sqrt{5}+1+\sqrt{10+2\sqrt{5}}}{4\sqrt{2}}$	$\frac{\sqrt{15}+\sqrt{3}-\sqrt{10-2\sqrt{5}}}{8}$	$\frac{-(\sqrt{3}-1)(\sqrt{5}+1)+(\sqrt{3}+1)\sqrt{10-2\sqrt{5}}}{8\sqrt{2}}$
$\tan \theta$	$\sqrt{3}$	$\sqrt{5}-1+\sqrt{5-2\sqrt{5}}$	$\frac{\sqrt{15}-\sqrt{3}+\sqrt{10-2\sqrt{5}}}{2}$	$\frac{-\sqrt{15}+2\sqrt{5}+3\sqrt{3}-4+(2\sqrt{15}-3\sqrt{5}-4\sqrt{3}+7)\sqrt{5+2\sqrt{5}}}{2}$

θ	72°	75°	78°	81°
$\sin \theta$	$\frac{\sqrt{10+2\sqrt{5}}}{4}$	$\frac{\sqrt{6}+\sqrt{2}}{4}$	$\frac{\sqrt{5}-1+\sqrt{30+6\sqrt{5}}}{8}$	$\frac{\sqrt{5}+1+\sqrt{10-2\sqrt{5}}}{4\sqrt{2}}$
$\cos \theta$	$\frac{\sqrt{5}-1}{4}$	$\frac{\sqrt{6}-\sqrt{2}}{4}$	$\frac{-\sqrt{15}+\sqrt{3}+\sqrt{10+2\sqrt{5}}}{8}$	$\frac{\sqrt{5}+1-\sqrt{10-2\sqrt{5}}}{4\sqrt{2}}$
$\tan \theta$	$\sqrt{5+2\sqrt{5}}$	$2+\sqrt{3}$	$\frac{\sqrt{15}+\sqrt{3}+\sqrt{10+2\sqrt{5}}}{2}$	$\sqrt{5}+1+\sqrt{5+2\sqrt{5}}$

θ	84°	87°	90°
$\sin \theta$	$\frac{\sqrt{15}+\sqrt{3}+\sqrt{10-2\sqrt{5}}}{8}$	$\frac{(\sqrt{3}-1)(\sqrt{5}-1)+(\sqrt{3}+1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$	1
$\cos \theta$	$\frac{-\sqrt{5}-1+\sqrt{30-6\sqrt{5}}}{8}$	$\frac{(\sqrt{3}+1)(\sqrt{5}-1)-(\sqrt{3}-1)\sqrt{10+2\sqrt{5}}}{8\sqrt{2}}$	0
$\tan \theta$	$\frac{\sqrt{15}+3\sqrt{3}+(\sqrt{5}+1)\sqrt{5+2\sqrt{5}}}{2}$	$\frac{\sqrt{15}+2\sqrt{5}+3\sqrt{3}+4+(2\sqrt{3}+\sqrt{5}+1)\sqrt{5+2\sqrt{5}}}{2}$	――