3°の倍数角の三角比

θ	$\sin\theta$	$\tan\theta$
0°	0	0
3°	$\frac{-(2+\sqrt{3})(1-\sqrt{5})-\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}(1+\sqrt{3})}$	$\frac{-\sqrt{2}(\sqrt{2}-\sqrt{5-\sqrt{5}})}{1+2\sqrt{3}+\sqrt{5}}$
6°	$\frac{-(1+\sqrt{5})+\sqrt{6}\sqrt{5-\sqrt{5}}}{8}$	$\frac{-\sqrt{2}(\sqrt{6}-\sqrt{5+\sqrt{5}})}{1+\sqrt{5}}$
9°	$\frac{1+\sqrt{5}-\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}}$	$1+\sqrt{5}-\sqrt{5+2\sqrt{5}}=\frac{-\sqrt{2}(2\sqrt{2}-\sqrt{5+\sqrt{5}})}{1-\sqrt{5}}$
12°	$\frac{\sqrt{3}(1-\sqrt{5})+\sqrt{2}\sqrt{5+\sqrt{5}}}{8}$	$\frac{\sqrt{2}(\sqrt{6}-\sqrt{5-\sqrt{5}})}{3+\sqrt{5}}$
15°	$\frac{-(1-\sqrt{3})}{2\sqrt{2}}$	$2-\sqrt{3}$
18°	$\frac{-(1-\sqrt{5})}{4}$	$\frac{\sqrt{5-2\sqrt{5}}}{\sqrt{5}}=\frac{\sqrt{2}\sqrt{5-\sqrt{5}}}{\sqrt{5}(1+\sqrt{5})}$
21°	$\frac{(2-\sqrt{3})(1+\sqrt{5})-\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}(1-\sqrt{3})}$	$\frac{\sqrt{2}(\sqrt{2}-\sqrt{5+\sqrt{5}})}{1-2\sqrt{3}-\sqrt{5}}$
24°	$\frac{\sqrt{3}(1+\sqrt{5})-\sqrt{2}\sqrt{5-\sqrt{5}}}{8}$	$\frac{-\sqrt{2}(\sqrt{6}-\sqrt{5+\sqrt{5}})}{3-\sqrt{5}}$
27°	$\frac{1-\sqrt{5}+\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}}$	$-(1-\sqrt{5})-\sqrt{5-2\sqrt{5}}=\frac{\sqrt{2}(2\sqrt{2}-\sqrt{5-\sqrt{5}})}{1+\sqrt{5}}$
30°	$\frac{1}{2}$	$\frac{1}{\sqrt{3}}$
33°	$\frac{-(2+\sqrt{3})(1-\sqrt{5})+\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}(1+\sqrt{3})}$	$\frac{\sqrt{2}(\sqrt{2}+\sqrt{5-\sqrt{5}})}{1+2\sqrt{3}+\sqrt{5}}$
36°	$\frac{\sqrt{5-\sqrt{5}}}{2\sqrt{2}}$	$\sqrt{5-2\sqrt{5}}=\frac{\sqrt{2}\sqrt{5-\sqrt{5}}}{1+\sqrt{5}}$
39°	$\frac{(2+\sqrt{3})(1+\sqrt{5})-\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}(1+\sqrt{3})}$	$\frac{-\sqrt{2}(\sqrt{2}-\sqrt{5+\sqrt{5}})}{1+2\sqrt{3}-\sqrt{5}}$
42°	$\frac{1-\sqrt{5}+\sqrt{6}\sqrt{5+\sqrt{5}}}{8}$	$\frac{-\sqrt{2}(\sqrt{6}-\sqrt{5-\sqrt{5}})}{1-\sqrt{5}}$
45°	$\frac{1}{\sqrt{2}}$	1

θ	$\sin\theta$	$\tan\theta$
45°	$\frac{1}{\sqrt{2}}$	1
48°	$\frac{-\sqrt{3}(1-\sqrt{5})+\sqrt{2}\sqrt{5+\sqrt{5}}}{8}$	$\frac{\sqrt{2}(\sqrt{6}+\sqrt{5-\sqrt{5}})}{3+\sqrt{5}}$
51°	$\frac{-(2-\sqrt{3})(1+\sqrt{5})-\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}(1-\sqrt{3})}$	$\frac{-\sqrt{2}(\sqrt{2}+\sqrt{5+\sqrt{5}})}{1-2\sqrt{3}-\sqrt{5}}$
54°	$\frac{1+\sqrt{5}}{4}$	$\frac{\sqrt{5+2\sqrt{5}}}{\sqrt{5}} = \frac{-\sqrt{2}\sqrt{5+\sqrt{5}}}{\sqrt{5}(1-\sqrt{5})}$
57°	$\frac{-(2-\sqrt{3})(1-\sqrt{5})-\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}(1-\sqrt{3})}$	$\frac{\sqrt{2}(\sqrt{2}-\sqrt{5-\sqrt{5}})}{1-2\sqrt{3}+\sqrt{5}}$
60°	$\frac{\sqrt{3}}{2}$	$\sqrt{3}$
63°	$\frac{-(1-\sqrt{5})+\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}}$	$-(1-\sqrt{5})+\sqrt{5-2\sqrt{5}} = \frac{\sqrt{2}(2\sqrt{2}+\sqrt{5-\sqrt{5}})}{1+\sqrt{5}}$
66°	$\frac{1+\sqrt{5}+\sqrt{6}\sqrt{5-\sqrt{5}}}{8}$	$\frac{\sqrt{2}(\sqrt{6}+\sqrt{5+\sqrt{5}})}{1+\sqrt{5}}$
69°	$\frac{(2+\sqrt{3})(1+\sqrt{5})+\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}(1+\sqrt{3})}$	$\frac{\sqrt{2}(\sqrt{2}+\sqrt{5+\sqrt{5}})}{1+2\sqrt{3}-\sqrt{5}}$
72°	$\frac{\sqrt{5+\sqrt{5}}}{2\sqrt{2}}$	$\sqrt{5+2\sqrt{5}} = \frac{-\sqrt{2}\sqrt{5+\sqrt{5}}}{1-\sqrt{5}}$
75°	$\frac{1+\sqrt{3}}{2\sqrt{2}}$	$2+\sqrt{3}$
78°	$\frac{-(1-\sqrt{5})+\sqrt{6}\sqrt{5+\sqrt{5}}}{8}$	$\frac{-\sqrt{2}(\sqrt{6}+\sqrt{5-\sqrt{5}})}{1-\sqrt{5}}$
81°	$\frac{1+\sqrt{5}+\sqrt{2}\sqrt{5-\sqrt{5}}}{4\sqrt{2}}$	$1+\sqrt{5}+\sqrt{5+2\sqrt{5}} = \frac{-\sqrt{2}(2\sqrt{2}+\sqrt{5+\sqrt{5}})}{1-\sqrt{5}}$
84°	$\frac{\sqrt{3}(1+\sqrt{5})+\sqrt{2}\sqrt{5-\sqrt{5}}}{8}$	$\frac{\sqrt{2}(\sqrt{6}+\sqrt{5+\sqrt{5}})}{3-\sqrt{5}}$
87°	$\frac{(2-\sqrt{3})(1-\sqrt{5})-\sqrt{2}\sqrt{5+\sqrt{5}}}{4\sqrt{2}(1-\sqrt{3})}$	$\frac{-\sqrt{2}(\sqrt{2}+\sqrt{5-\sqrt{5}})}{1-2\sqrt{3}+\sqrt{5}}$
90°	1	–

$$2\sqrt{5+\sqrt{5}} = (1+\sqrt{5})\sqrt{5-\sqrt{5}}$$
$$2\sqrt{5-\sqrt{5}} = -(1-\sqrt{5})\sqrt{5+\sqrt{5}}$$
$$2\sqrt{2}\sqrt{5+2\sqrt{5}} = (3+\sqrt{5})\sqrt{5-\sqrt{5}}$$
$$2\sqrt{2}\sqrt{5-2\sqrt{5}} = (3-\sqrt{5})\sqrt{5+\sqrt{5}}$$

$$2(1+2\sqrt{3}+\sqrt{5}) = -(1+\sqrt{3})(1-\sqrt{5})(\sqrt{3}+\sqrt{5})$$
$$2(1+2\sqrt{3}-\sqrt{5}) = -(1+\sqrt{3})(1+\sqrt{5})(\sqrt{3}-\sqrt{5})$$
$$2(1-2\sqrt{3}+\sqrt{5}) = (1-\sqrt{3})(1-\sqrt{5})(\sqrt{3}-\sqrt{5})$$
$$2(1-2\sqrt{3}-\sqrt{5}) = (1-\sqrt{3})(1+\sqrt{5})(\sqrt{3}+\sqrt{5})$$

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