3. $\cos 67.5^\circ$

$\cos\left(\frac{135^\circ}{2}\right)$ ← $\alpha = 135^\circ$

$= \sqrt{\frac{1+\cos\alpha}{2}}$

$= \sqrt{\frac{1+\cos 135^\circ}{2}}$

$= \sqrt{\frac{1-\frac{\sqrt{2}}{2}}{2}}$

$= \sqrt{\frac{2-\sqrt{2}}{4}}$

$= \frac{\sqrt{2-\sqrt{2}}}{\sqrt{4}}$

$= \boxed{\frac{\sqrt{2-\sqrt{2}}}{2}}$

$67.5 \times 2 = 135.0$

$2\overline{)67.5}$ → 33.7

4. $\sin 15^\circ$

$= \sin\left(\frac{30^\circ}{2}\right)$ ← α

$= \sqrt{\frac{1-\cos\alpha}{2}}$

$= \sqrt{\frac{1-\cos 30^\circ}{2}}$

$= \sqrt{\frac{1-\frac{\sqrt{3}}{2}}{2}}$

$= \sqrt{\frac{2-\sqrt{3}}{4}}$

$= \frac{\sqrt{2-\sqrt{3}}}{\sqrt{4}}$

$= \boxed{\frac{\sqrt{2-\sqrt{3}}}{2}}$

$15^\circ \times 2 = 30^\circ$

$2\overline{)15.0}$ → 7.5, 14, 10