Warmup 9: Use the sum or difference formula to find the exact value of $\sin\frac{13\pi}{12}$. $= \frac{3\pi}{12} + \frac{10\pi}{12}$

$$\sin\frac{13\pi}{12} = \sin\left(\frac{\pi}{4} + \frac{5\pi}{6}\right)$$

$$\sin(A+B) = \sin A\cos B + \cos A\sin B$$

$$= \sin\frac{\pi}{4}\cos\frac{5\pi}{6} + \cos\frac{\pi}{4}\sin\frac{5\pi}{6}$$

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

$$= \frac{-\sqrt{6}}{4} + \frac{\sqrt{2}}{4}$$

$$= \boxed{\frac{-\sqrt{6}+\sqrt{2}}{4}} \text{ or } \boxed{\frac{\sqrt{2}-\sqrt{6}}{4}}$$