IC 27: Sum and Difference of Angles

Use a sum or difference formula to evaluate each expression.

1. $\sin(75°)$

2. $\cos(15°)$

3. $\tan(105°)$

4. $\cos\left(\frac{13\pi}{12}\right)$

5. $\tan\left(\frac{7\pi}{12}\right)$

Write each expression as a single trig function and evaluate exactly.

7. $\sin(12°)\cos(18°) + \cos(12°)\sin(18°)$

8. $\cos(70°)\cos(20°) - \sin(70°)\sin(20°)$

9. Show that $\sin(x - \pi) = -\sin(x)$

10. Assume $x, y > 0$. Find $\cos\Big(\cos^{-1}(x) - \tan^{-1}(y)\Big)$ in terms of x and y.

11. Let $\cos\alpha = \dfrac{5}{13}$ with $0 \leq \alpha \leq \frac{\pi}{2}$, and $\sin\beta = \dfrac{3}{5}$ with $0 \leq \beta \leq \frac{\pi}{2}$. Find the exact value of $\tan(\alpha + \beta)$.