**Express as a cofunction of a complementary angle.**

1. (a) sin 46°37' (b) cos 73°12' (c) tan $\frac{π}{6}$ (d) sec 17.28°

2. (a) cos $\frac{7π}{20}$ (b) sin $\frac{1}{4}$ (c) tan 1 (d) csc 0.53

**Find the exact values.**

3. (a) cos $\frac{π}{4}$ + cos $\frac{π}{6}$ (b) cos $\frac{5π}{12}$ (use $\frac{5π}{12}$ = $\frac{π}{4}+ \frac{π}{6}$)

4. (a) tan 60° + tan 225° (b) tan 285° (use 285° = 60° + 225°)

5. (a) sin $\frac{3π}{4}- $sin $\frac{π}{6}$ (b) sin $\frac{7π}{12}$ (use $\frac{7π}{12}$ = $\frac{3π}{4}- \frac{π}{6}$)

**Express as a trigonometric function of one angle.**

6. cos 48° cos 23° + sin 48° sin 23° 7. cos 10° sin5° - sin 10° cos 5° 8. cos 3 sin (-2) - cos 2 sin 3

9. If α and β are acute angles such that cos α = $\frac{4}{5}$ and tan β = $\frac{8}{15}$, find

(a) sin (α + β) (b) cos (α + β) (c) the quadrant containing (α + β)

10. If sin α = $-\frac{4}{5}$ and sec β = $\frac{5}{3}$ for a third-quadrant angle α and a first-quadrant angle β, find

(a) sin (α + β) (b) tan (α + β) (c) the quadrant containing (α + β)

11. If α and β are third-quadrant angles such that cos α = $-\frac{2}{5}$ and cos β = $-\frac{3}{5}$, find

(a) sin (α - β) (b) cos (α - β) (c) the quadrant containing (α - β)

**Verify the reduction formula.**

12. sin (θ + π) = -sin θ 13. sin (x - $\frac{5π}{2}$) = -cos x 14. cos (θ - π) = -cos θ

**Verify the identity.**

15. sin (θ + $\frac{π}{4}$) = $\frac{\sqrt{2}}{2}$(sin θ + cos θ) 16. tan (u + $\frac{π}{4}$) = $\frac{1+\tan(u)}{1-\tan(u)}$

**Use the addition or subtraction formula to find the solutions of the equation that are in the interval [0, π).**

17. sin 4t cos t = sin t cos 4t 18. cos 5t cos 2t = - sin 5t sin 2t