**Find the exact value of the expression whenever it is defined.**

1. (a) sin-1 $(-\frac{\sqrt{2}}{2})$ (b) cos-1$(-\frac{1}{2})$ (c) tan-1 ($-\sqrt{3}$)

2. (a) arcsin $(\frac{\sqrt{3}}{2})$ (b) arccos $\frac{\sqrt{2}}{2}$ (c) arctan $\frac{1}{\sqrt{3}}$

3. (a) sin-1 $\frac{π}{3}$ (b) cos-1 $\frac{π}{2}$ (c) tan-1 1

4. (a) sin[arcsin ($-\frac{3}{10}$)] (b) cos (arccos $\frac{1}{2}$) (c) tan (arctan 14)

5. (a) sin-1 (sin $\frac{π}{3}$) (b) cos-1 [cos ($\frac{5π}{6}$)] (c) tan-1 [tan($-\frac{π}{6}$)]

6. (a) arcsin (sin $\frac{5π}{4}$) (b) arccos (cos $\frac{5π}{4}$) (c) arctan (tan $\frac{7π}{4}$)

7. (a) sin [cos-1($-\frac{1}{2}$)] (b) cos (tan-1 1) (c) tan [sin-1 (-1)]

8. (a) cot (sin-1 $\frac{2}{3}$) (b) sec [tan-1 ($-\frac{3}{5}$)] (c) csc [cos-1 ($-\frac{1}{4}$)]

9. (a) sin (arcsin $\frac{1}{2}$ + arccos 0) (b) cos [arctan ($-\frac{3}{4}$) - arcsin $\frac{4}{5}$) (c) tan (arctan $\frac{4}{3}$ + arccos $\frac{8}{17}$)

10. (a) sin [2 arccos ($-\frac{3}{5}$)] (b) cos (2 sin-1 $\frac{15}{17}$) (c) tan (2 tan-1 $\frac{3}{4}$)

**Write the expression as an algebraic expression in x for x > 0.**

11. sin (tan-1 x) 12. sin (2 sin-1 x) 13. cos ($\frac{1}{2}$ arccos x)