Directions: Evaluate the following expressions.

1. $\cos^{-1}\left(\frac{1}{2}\right) =$

2. $\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right) =$

3. $\tan^{-1}(1) =$

4. $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) =$

5. $\sin^{-1}\left(-\frac{1}{2}\right) =$

6. $\tan^{-1}\left(-\frac{1}{\sqrt{3}}\right) =$

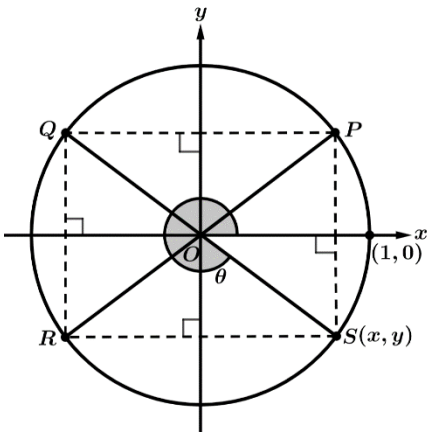
Directions: Solve the following equations.

7. $\sin^{-1}(x) = \cos^{-1}(0)$

8. $2\sin^{-1}(x) = \cos^{-1}\left(-\frac{1}{2}\right)$

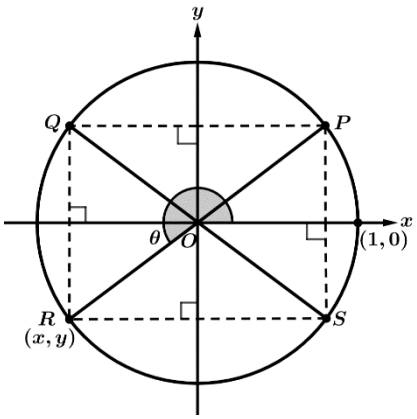
9. $\tan^{-1}(\pi x) = \sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)$

10. $3\sin^{-1}\left(\frac{x}{2}\right) = \cos^{-1}(-1)$



11. The angle θ is in standard position. The terminal ray intersects the unit circle at point S, whose coordinates are (x, y). The points P, Q, and R are the result of the terminal ray being reflected over the y-axis, the origin, and the x-axis respectively. For each of the following expressions, determine which labeled point intersects the terminal ray of the given angles.

a) $\sin^{-1}(-y)$ b) $\cos^{-1}(-x)$ c) $\tan^{-1}\left(\frac{y}{x}\right)$



12. The angle θ is in standard position. The terminal ray intersects the unit circle at point R, whose coordinates are (x, y). The points P, Q, and S are the result of the terminal ray being reflected over the y-axis, the origin, and the x-axis respectively. For each of the following expressions, determine which labeled point intersects the terminal ray of the given angles.

a) $\sin^{-1}(y)$ b) $\cos^{-1}(x)$ c) $\tan^{-1}\left(\frac{y}{x}\right)$

d) $\sin^{-1}(-y)$ e) $\cos^{-1}(-x)$ f) $\tan^{-1}\left(-\frac{y}{x}\right)$