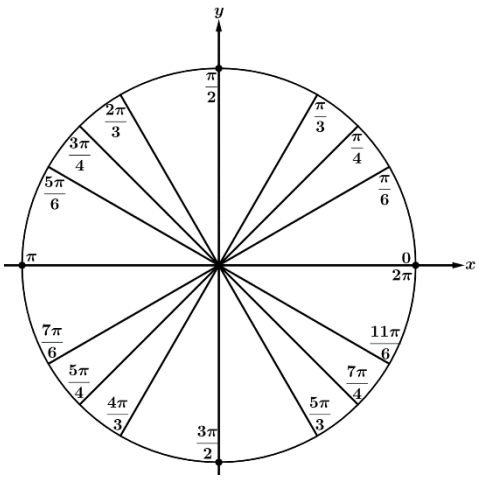
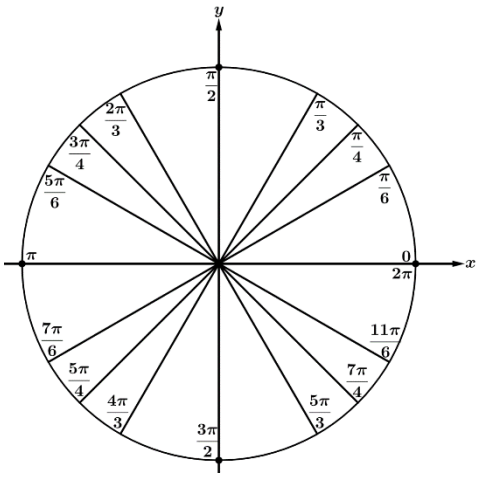
Directions: For problems 1 – 3, indicate/highlight the portion of the unit circle that satisfies the given inequality. Then, write the solution in interval notation or as an inequality.

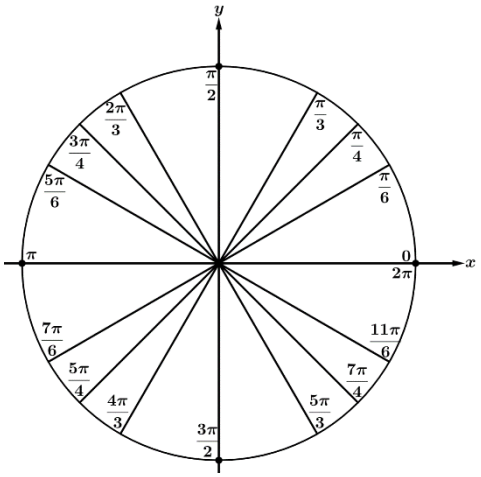
1. What are all values of θ, $0 \le \theta < 2\pi$, for which $\sin\theta \ge \frac{\sqrt{3}}{2}$?



2. What are all values of θ, $0 \le \theta < 2\pi$, for which $\cos\theta < \frac{1}{2}$?



3. Let $f(x) = \sin x$. What are all values of x in the xy-plane, $0 \le x \le 2\pi$, for which $f(x) \ge -\frac{\sqrt{2}}{2}$?



4. Let $f(x) = 3 + 4\sin x$ and let $g(x) = 1$. What are all values of x in the xy-plane, $0 \le x \le 2\pi$, for which $f(x) < g(x)$?

5. Let $h(x) = 3\cos x$ and let $k(x) = 1 + 5\cos x$. What are all values of x in the xy-plane, $0 \le x \le 2\pi$, for which $h(x) \le k(x)$?

6. What are all values of θ, $0 \le \theta \le 2\pi$, for which $(2\cos\theta - 1)(\sin\theta + 1) < 0$?

7. What are all values of θ, $0 \le \theta \le 2\pi$, for which $\sin^2\theta\left(2\cos\theta - \sqrt{2}\right) \ge 0$?

8. What are all values of θ, $0 \le \theta \le 2\pi$, for which $2\sin^2\theta - \sin\theta - 1 < 0$?

9. What are all values of θ, $0 \le \theta \le 2\pi$, for which $2\cos^3\theta - \cos\theta > 0$?

10. What are all values of θ, $0 \le \theta \le 2\pi$, for which $2\sin^2\theta + 9\sin\theta - 5 \ge 0$?