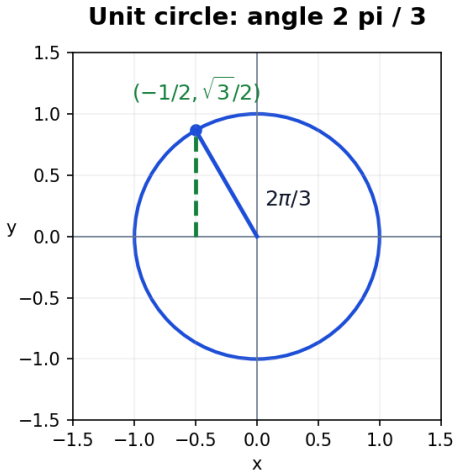
Solutions

5.3 The Six Functions

5.3.1. At $2\pi/3$, find sine, cosine, and tangent exactly.

Solution. $\sin = \sqrt{3}/2$, $\cos = -1/2$, and $\tan = -\sqrt{3}$.



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The terminal point is (-1/2, sqrt(3)/2); tangent is -sqrt(3).

5.3.2. If $\sin\theta = 5/13$ and theta is acute, find secant.

Solution. The adjacent side is 12 by Pythagoras, so $\sec\theta = 13/12$.

5.3.3. Find $\csc(3\pi/2)$ and state whether cotangent exists there.

Solution. Sine is -1, so cosecant is -1. Cotangent is $0/(-1) = 0$, which exists.