Math130 Trigonometry

Second Midterm Exam

Colorado Mesa University · 2025 Spring

NAME: _____

1. What are the *exact values*, expressed in terms of radicals if necessary, of each of the following outputs of a trigonometric function?

   (a) $\cos(\pi)$ (b) $\cos\left(\frac{\pi}{2}\right)$ (c) $\tan\left(\frac{3\pi}{4}\right)$

   (d) $\sin\left(\frac{\pi}{6}\right)$ (e) $\sin\left(\frac{\pi}{4}\right)$ (f) $\sin\left(\frac{\pi}{3}\right)$

   (g) $\cos\left(\frac{7\pi}{6}\right)$ (h) $\sin\left(\frac{4\pi}{3}\right)$ (i) $\tan\left(\frac{\pi}{3}\right)$

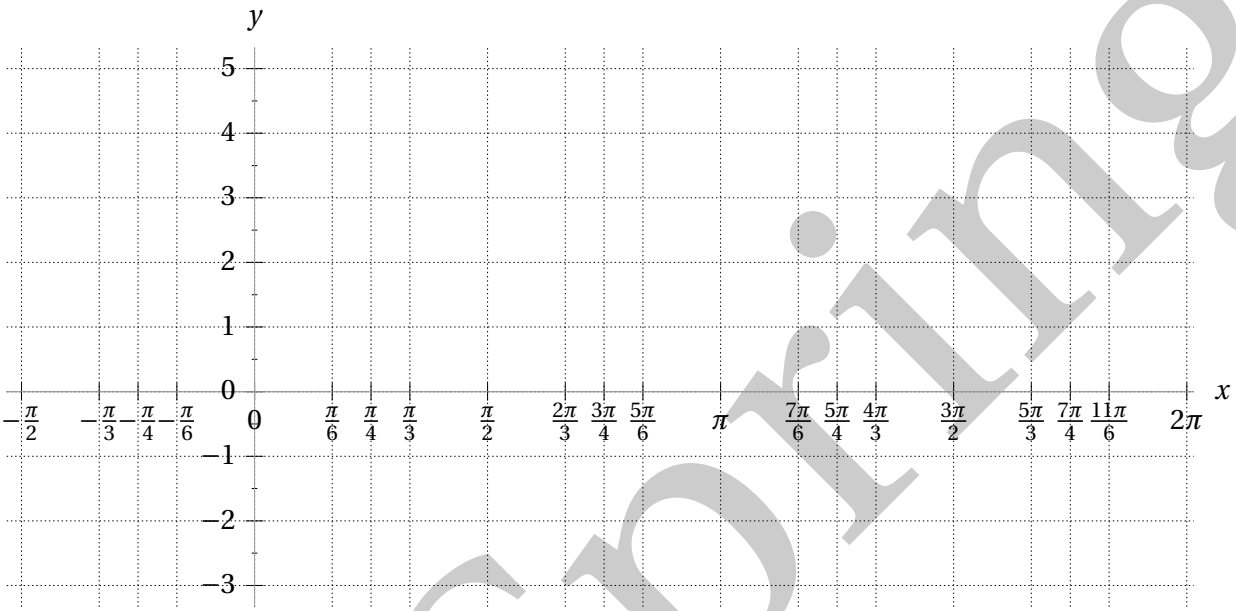
   (j) $\sec\left(\frac{\pi}{6}\right)$ (k) $\csc\left(\frac{-\pi}{3}\right)$ (l) $\cot\left(\frac{\pi}{3}\right)$

2. What is the smallest positive value of t such that $\sin(t) = 1$?

3. What is the smallest positive value of t such that $\tan(t) = 1$?

4. What values might $\cos(t)$ be if $\sin(t) = \frac{1}{2}$?

5. On the axes below, accurately sketch the graph of the function $3\sin\left(2x-\frac{\pi}{3}\right)$. Be sure that is is clear from your sketch what the period, amplitude, and phase shift of the function are, and exactly where the x-intercepts are located.



6. The graph of f, a transformation of the cosine function, is plotted below. What is a plausible formula for the function f? (CHALLENGE: The graph of f could *also* be regarded as a transformation of a sine function. What a plausible formula in this case?)