

Name: _____

Key to Practice Test 2 for Calculus I (151I and L)

1. $\cos \theta = \frac{\sqrt{15}}{4}$; $\tan \theta = \frac{-1}{\sqrt{15}}$; $\csc \theta = -4$; $\sec \theta = \frac{4}{\sqrt{15}}$; $\cot \theta = -\sqrt{15}$.
2. $\sin\left(\frac{4\pi}{3}\right) = \frac{-\sqrt{3}}{2}$; $\cos\left(\frac{4\pi}{3}\right) = \frac{-1}{2}$; $\tan\left(\frac{4\pi}{3}\right) = \sqrt{3}$.
3. (a) First, graph $y = f(x)$. Compress horizontally by a factor of 4, and then stretch vertically by a factor of 2.
(b) (omitted)
4. (a) ∞ .
(b) $-\infty$.
5. f is continuous on $(-\infty, -1)$, $[-1, 1]$, and $(1, \infty)$. The function f is continuous from the left (but not from the right) at 1, and continuous from the right (but not from the left) at -1 .
6. 0.
7. $1/4$.
8. $-1/32$.
9. $1/5$.
10. $28/31$.
11. $a = -3/2$.
12. $f(0) = 1$ and $f(2) = -4$. Since 0 is strictly between $f(0)$ and $f(2)$ and f is continuous on $[0, 2]$, there is some d in $(0, 2)$ such that $f(d) = 0$. It follows that $2^d - d^3 = 0$, so $2^d = d^3$.