

Name:

SIDN:

Math 32 Midterm 2

Please read the following before beginning the exam

- a. There are 10 problems on the exam. All problems are worth 5 points.
- b. No calculators, notes or books are allowed to be out during the exam. If you are caught with said items your exam will be confiscated.
- c. The exam starts at 10:15am and ends at 12:00pm. Do not open the exam until instructed to do so.
- d. If you have any questions about any of the problems raise your hand and wait for assistance.
- e. Please make it clear what your intended answer is.

1. Prove the identity $\cot 2\theta = \frac{1}{2}(\cot \theta - \tan \theta)$.

2. Graph 2 periods of the function $y = -2 \csc(\pi x - \pi)$. Label the asymptotes.

3. Prove the identity

$$\frac{\cos \theta}{\sec \theta - 1} + \frac{\cos \theta}{\sec \theta + 1} = 2 \cot^2 \theta$$

4. Make and fill in a table for $\sin \theta$, $\cos \theta$ and $\tan \theta$ for $\theta = \pi, 7\pi/6, 5\pi/4, 4\pi/3, 3\pi/2$.

5. Solve $9^x + 3(3^x) - 4 = 0$ for x .

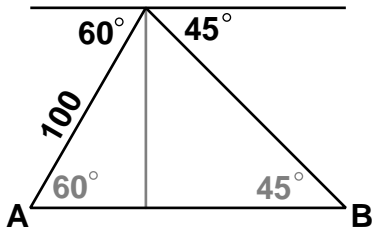
6. Make and fill in a table for $\csc \theta$, $\sec \theta$ and $\cot \theta$ for $\theta = 0^\circ, 30^\circ, 45^\circ, 60^\circ, 90^\circ$.

7. a. Compute $\log_{81} 27$.
- b. Simplify the expression $\log_3 A + 4 \log_9 B - 9 \log_{27} C$, by writing it as a single logarithm with base 3 and leading coefficient 1.

8. Simplify the expression as much as possible, your final answer should not contain any fractions.

$$\frac{\cos(90^\circ - B)}{1 + \cos(B)} + \frac{1 + \sin(90^\circ - B)}{\sin(B)}$$

9. Find the distance from point A to point B . The two horizontal lines are parallel.



10. a. Graph the function $f(x) = \frac{(x+1)x(x-2)}{(x-1)^4}$. State any and all horizontal and vertical asymptotes.
- b. Find the domain of the function $\sqrt{f(x)}$ where $f(x)$ is the function defined in part 10.a.