

YOUR NAME: _____

George Voutsadakis

Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Evaluate the following trigonometric limits **showing all work**:

(a) $\lim_{\theta \rightarrow 0} \frac{\csc(-2\theta)}{\csc(3\theta)}$

(b) $\lim_{\theta \rightarrow 0^-} \frac{\sin \theta}{1 - \cos \theta}$

2. Compute the limit **showing all work**: $\lim_{x \rightarrow 4} \frac{x - 4}{\sqrt{x} - \sqrt{8 - x}}$.

3. **Bonus Problem**: Compute the limit providing explanations when needed:

$$\lim_{x \rightarrow \infty} [\ln(3x + 1) - \ln(2x + 1)] =$$