

Name \_\_\_\_\_

- You have 20 minutes
- No calculators
- Show sufficient work

1. (2 points) Evaluate and simplify the following quantity.

$$8 \sin^2(2\pi/3) + 9 \csc^2(\pi/13) - 9 \cot^2(\pi/13)$$

2. (2 points) Given an acute angle  $\theta$  for which  $\tan(\theta) = 1/5$ , evaluate  $\sin(\pi + \theta)$ .

3. (3 points) State the domain of the function using interval notation.

$$f(x) = \frac{9 + \sqrt[4]{4000 - 10x^2}}{2 + \sqrt[3]{4x + 12}}$$

4. (3 points) Use the definitions of even and odd functions to prove whether the following function is even, odd or neither.

$$f(x) = x^9 \sin(2x^3 + 4x^5)$$