

Name \_\_\_\_\_

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

1. (1 point) Evaluate  $\cot\left(\frac{5\pi}{6}\right)$ .

2. (3 points) Given an acute angle  $\theta$  for which  $\sin(\theta) = 1/4$ , evaluate  $\sin\left(\frac{3\pi}{2} + \theta\right)$ .

3. (3 points) Determine the domain of the given function.

$$f(x) = \frac{\sqrt{3x - 15}}{6 - \sqrt{100 - x^2}}$$

4. (3 points) Suppose that  $f(x)$  and  $g(x)$  are both odd functions and let  $h(x) = f(x) \cdot \cos(g(x))$ . Carefully prove that  $h(x)$  is an odd function.