

**MATH 1151 QUIZ-1** (15 minutes)

**1. (6 points)** A pendulum swings through an angle of  $20^\circ$  each second. If the pendulum is 40 inches long, how far does its tip move each second?

**Solution:** We have the formula  $s = r\theta$  where  $\theta$  is measured in radians. So  $\theta$  here is equal to  $\frac{20 \times 2\pi}{360} = \frac{\pi}{9}$ . So answer is then equal to  $s = r\theta = 40 * \frac{\pi}{9} = \frac{40\pi}{9}$ . **Q.E.D.**

**2. (4 points)** If  $\cot \theta = -2$ , find  $\cot(\theta + \pi)$ .

**Solution:** Cotangent function is periodic with period  $\pi$ . So  $\cot(\theta + \pi) = \cot \theta = -2$ . **Q.E.D.**