MATH 31
TRIGONOMETRY HW \#4

Name $\qquad$
Date $\qquad$

1. Find the local maximum and minimum for $f(x)=x-2 \sin x$ on the interval $[0,2 \pi]$. Justify.
2. A radar antenna, rotating at $32 \mathrm{rev} / \mathrm{min}$, is located on a ship that is 4 km from a straight shore. How fast does the radar beam sweep across the shore when the angle between the beam and the shore is $\frac{\pi}{4}$ ?
3. A 10 metre long ladder rests against a vertical wall. If the bottom of the ladder slides away from the wall at a speed of $2 \mathrm{~m} / \mathrm{s}$, how fast is the angle between the top of the ladder and the wall changing when the angle is $\frac{\pi}{4}$ ?
