MATH 152(45) QUIZ 1 OCTOBER 12, 2015

Please show **all** your work! Answers without supporting work will not be given credit. Write answers in spaces provided. You have 20 minutes to complete this Quiz. You can get MAXIMUM $(8+7+5=)20$ marks.

Name:_____

1. Prove that the equation $x^2 - x - 10\sin x = 0$ has a positive solution.
2. Find the points on the curve $y^2 = x(x^2-4)$ where it has a *vertical* tangent.
3. Does there exist a constant A such that the following function is continuous at $x = 1$? If yes, find the value of A.

$$f(x) = \begin{cases} \frac{1}{Ax-2} & x \leq 1 \\ 3 - 2Ax + x^2 & x > 1 \end{cases}$$