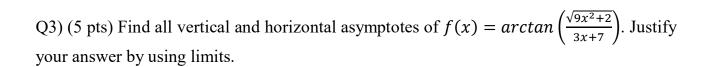
King Fahd University of Petroleum and Minerals Math. & Stat. Departement QUIZ # 2

Name	ID	SEC 15	Sr#
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Q1) (5 pts) For what value of k the function f(x) has a removable discontinuity at x = 0?

$$f(x) = \begin{cases} k - \sin x &, x < 0\\ 1 &, x = 0\\ x^2 - k^2 + 2, x > 0 \end{cases}$$

Q2)(5 pts) If $f(x) = x^2 + 10 \sin x$, show that there is a number c such that f(c) = 1000.



Q4)(5 pts) Find the equation of the tangent line to the curve $f(x) = \sqrt{1-2x}$ at x = -4.

Q5) (4 pts bounus)Suppose f(x) is a differentiable function that satisfies the following f(x+y) = f(x) + f(y) + 2xy - 1 for any real numbers x and y and $\lim_{x \to 0} \frac{f(x)-1}{x} = -2$. Then find f(1).