

King Fahd University of Petroleum and Minerals  
Math. & Stat. Department  
163-Math 101 Quiz (2)

Name	ID	SEC 12
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Q1) Find all discontinuities of

$$f(x) = \begin{cases} \frac{x^2 - x - 2}{x^2 - 4} & \text{if } x < 2 \\ \frac{2x^2 - 8}{3x^2 - 5x - 2} & \text{if } x > 2 \end{cases}$$

and state their types.

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Q2) Find the horizontal asymptotes of  $f(x) = \frac{3x - 9}{5x - \sqrt{x^2 + 2}}$ .

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Q3) Find the equation of the tangent line to  $f(x) = \frac{1}{\sqrt{1-x}}$  at  $x = 0$ . You must use the limits to find the slope.