

Quiz 7

(a)[2 Pts] Let

$$h(x) = \frac{x^2 + x - 2}{x + 2}$$

Is  $h$  continuous at  $x = -2$ ? Justify your answer.

(b)[3 Pts] Let

$$f(x) = \begin{cases} \frac{x^2+x-2}{x+2} & \text{if } x \neq -2 \\ 0 & \text{if } x = -2. \end{cases}$$

Prove that  $f$  is discontinuous at  $x = -2$ .(c)[3 Pts] Define  $a$  so that  $g$  below will be continuous at  $x = -2$ . Prove the continuity at  $x = -2$ .

$$g(x) = \begin{cases} \frac{x^2+x-2}{x+2} & \text{if } x \neq -2 \\ a & \text{if } x = -2. \end{cases}$$