

Use the $\epsilon - \delta$ property to prove that the following functions are continuous at the given point.

1. $f(x) = x^2 + 2x$

(a). at $x = -3$

(b). at $x = a$

2. $f(x) = \frac{1}{x^2}$ at $x = a > 0$

[Similar proof or letting $b = -a > 0$ and referencing the above proof can show continuity of $f(x) = \frac{1}{x^2}$ for $x = a < 0$. But you do not need to show it.]

3. $f(x) = \sqrt{3x + 1}$ at $x = a$