

$$f(x) = \sqrt{2x+1}$$

$$1. f(-0.5) = 0$$

Use Limit Laws

$$2. \lim_{x \rightarrow -0.5} \sqrt{2x+1}$$

$$\sqrt{\lim_{x \rightarrow -0.5} 2x + 1}$$

$$\sqrt{\lim_{x \rightarrow -0.5} 2x + \lim_{x \rightarrow -0.5} 1}$$

$$\sqrt{2 \cdot \lim_{x \rightarrow -0.5} x + \lim_{x \rightarrow -0.5} 1}$$

$$\sqrt{2 \cdot -0.5 + 1}$$

$$\sqrt{-1 + 1}$$

$$\sqrt{0}$$

$$0$$

$$3. \lim_{x \rightarrow a} f(x) = f(a)$$

$$\lim_{x \rightarrow -0.5} \sqrt{2x+1} = f(-0.5)$$

$$0 = 0$$

Domain  $[-0.5, \infty)$

where  $a$  is a real number  
in-domain  $f$

Use Direct Substitution

$$\lim_{x \rightarrow -0.5} \sqrt{2x+1}$$

$$x \rightarrow -0.5$$

$$2(-0.5) + 1$$

$$-1 + 1$$

$$0$$

$$\lim_{x \rightarrow -0.5} \sqrt{2x+1} = 0$$

Validated that  $f(x) = \sqrt{2x+1}$  is continuous above

When  $a > -0.5$  then the interval will be  $(-0.5, \infty)$

This makes  $f$  continuous from the right at  $x = -0.5$

$$a = -0.5$$