

Calculus

Find glb and lub of the set

$$S = \left\{ \frac{2x-1}{x+4} : |x-5| < 2 \right\}$$

$$S = \frac{2x-1}{x+4} = 2 - \frac{9}{x+4}$$

$$|x-5| < 2$$

$$-2 < x-5 < 2.$$

$$-2+5 < x < 2+5$$

$$3 < x < 7$$

$$3+4 < x+4 < 7+4$$

$$7 < x+4 < 11$$

$$\frac{1}{7} > \frac{1}{x+4} > \frac{1}{11}$$

$$-\frac{9}{7} < \frac{-9}{x+4} < -\frac{9}{11}$$

$$2 - \frac{9}{7} < 2 - \frac{9}{x+4} < 2 - \frac{9}{11}$$

$$\frac{5}{7} < 2 - \frac{9}{x+4} < \frac{13}{11}$$

$$\frac{5}{7} < \frac{2x-1}{x+4} < \frac{13}{11}$$

$$g.l.b = \frac{5}{7}$$

$$l.u.b = \frac{13}{11}$$

find g.l.b and l.u.b.

$$\frac{2x+1}{x+5}$$

$$\underline{\underline{|x-4| < 2}}$$

