Calculus - 1

Properties of Real Numbers and Bounds : lecture 3

Solve $\frac{x+3}{x-2} < 5$

Proof

$x - 2 \neq 0$

$x \neq 2$

$x > 2$

$\frac{x+3}{x-2} < 5$

$x + 3 < 5x - 10$

$3 + 10 < 5x - x$

$x < 2$

$\frac{x+3}{x-2} < 5$

$x + 3 > 5x - 10$

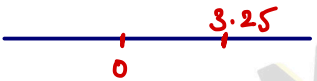
$3 + 10 > 5x - x$

$13 > 4x$

$13 < 4x$

$\frac{13}{4} < x$

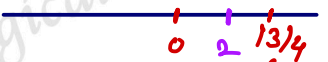
$x > \frac{13}{4}$



Solution set is $\left(\frac{13}{4}, \infty\right)$

$\frac{13}{4} > x$

$x < \frac{13}{4}$



But $x < 2$

Solution set is $(-\infty, 2)$

Solution set is $(-\infty, 2] \cup \left(\frac{13}{4}, \infty\right)$