Name _____ Date _____

Products, Quotients and Sign Tables

Example: $(x-1)(x+3) > 0$

x	$-\infty$		-3		1		$+\infty$
$x-1$		−		−	0	+	
$x+3$		−	0	+		+	
$(x-1)(x+3)$		+	0	−	0	+	

$x \in (-\infty, -3) \cup (1, +\infty)$

Remember

Products and quotients are **positive** when the factors have the same sign and **negative** when the signs differ. The zeros of the factors split the line into intervals, and within each one the sign does not change. Points where the **denominator is 0** are never in the solution. Never multiply an inequality by a denominator whose sign you do not know!

1 ON YOUR OWN Complete the sign table and write the solution.

$(x-2)(x+4) \leq 0$

x	$-\infty$	☐		☐	$+\infty$
$x-2$					
$x+4$					
$(x-2)(x+4)$					

$x \in$ ☐

Names (pair) _____ Date _____

2 ON YOUR OWN Solve with a sign table.

$(3-x)(x+1) > 0$

x	$-\infty$	☐		☐	$+\infty$
$3-x$					
$x+1$					
$(3-x)(x+1)$					

$x \in$ ☐

$\frac{x-2}{x+1} \leq 0$

x	$-\infty$	☐		☐	$+\infty$
$x-2$					
$x+1$					
$\frac{x-2}{x+1}$					

$x \in$ ☐

3 IN PAIRS **Find the mistake.** Toni solved $\frac{x+1}{x-2} < 3$ like this: $x+1 < 3(x-2)$, so $x > \frac{7}{2}$. Why is that wrong? Solve it correctly: first move 3 to the left side and write it as one fraction.

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Type the function, e.g. $y = (x-2)/(x+1)$, choose the inequality and turn on **Sign table under the graph**.

★ ON YOUR OWN **Exit card.** $(x+2)(x-5) < 0 \rightarrow x \in$ ☐