

Name: ANSWER KEY

Score: _____

Solve the inequality. Express your answer in terms of (1) inequalities, (2) intervals or unions of intervals, and (3) graphs.

$$\frac{x}{3x-5} \leq \frac{2}{x-1}$$

$$\frac{x}{3x-5} - \frac{2}{x-1} \leq 0$$

$$\frac{x(x-1) - 2(3x-5)}{(3x-5)(x-1)} \leq 0$$

$$\frac{x^2 - x - 6x + 10}{(3x-5)(x-1)} \leq 0$$

$$\frac{x^2 - 7x + 10}{(3x-5)(x-1)} \leq 0$$

$$\frac{(x-5)(x-2)}{(3x-5)(x-1)} \leq 0$$

Zeros of numerator: 5, 2

Zeros of denominator: $\frac{5}{3}$, 1

	1	$\frac{5}{3}$	2	5	
$x-5$	-	-	-	+	+
$x-2$	-	-	+	+	+
$3x-5$	-	+	+	-	+
$x-1$	+	-	+		
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$$1 < x < \frac{5}{3} \text{ or } 2 \leq x \leq 5$$

$$(1, \frac{5}{3}) \cup [2, 5]$$

