

Precalculus

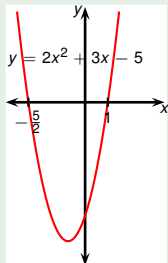
Quadratic inequality part 1

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Example

Solve the inequality.

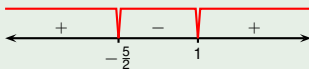


$$2x^2 + 3x - 5 \geq 0$$

$$(2x + 5)(x - 1) \geq 0$$

$$x \in (-\infty, -\frac{5}{2}] \cup [1, \infty)$$

Left hand side vanishes when $x = -\frac{5}{2}$ and when $x = 1$.
The two roots split the real line into three intervals:
 $(-\infty, -\frac{5}{2})$, $(-\frac{5}{2}, 1)$, $(1, \infty)$.



Interval	Factor signs	Final sign	Sample pt	Value at sample pt
$(-\infty, -\frac{5}{2})$	$(-)(-)$	+	-100	$f(-100) > 0$
$(-\frac{5}{2}, 1)$	$(+)(-)$	-	0	$f(0) = -5 < 0$
$(1, \infty)$	$(+)(+)$	+	100	$f(100) > 0$