

Precalculus

Quadratic inequality part 1

Todor Milev

2019

Example

Solve the inequality.

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

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$$\begin{aligned} 2x^2 + 3x - 5 &\geq 0 \\ (?)(?) &\geq 0 \end{aligned}$$

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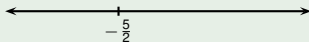
$$\begin{aligned} 2x^2 + 3x - 5 &\geq 0 \\ (2x + 5)(x - 1) &\geq 0 \end{aligned}$$

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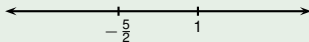


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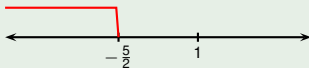


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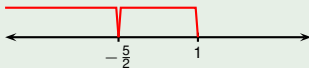
| Interval | Factor signs | Final sign | |
|---------------------------|--------------|------------|--|
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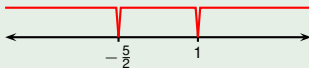
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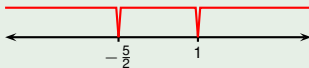
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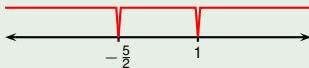
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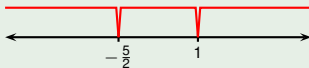
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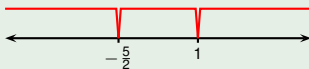
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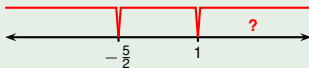
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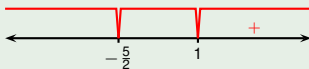
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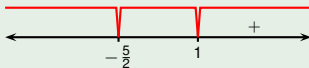
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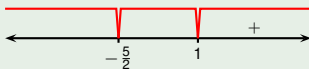
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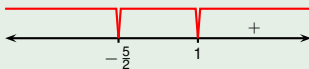
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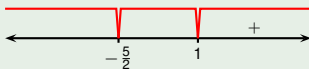
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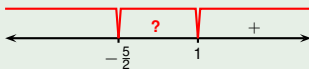
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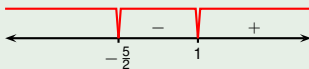
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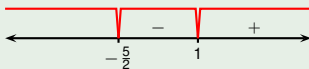
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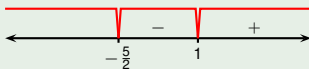
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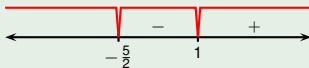
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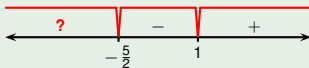
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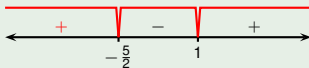
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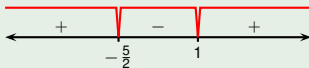
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| $(-\infty, -\frac{5}{2})$ | $(-)(-)$ | + | -100 | $f(-100) > 0$ |
| $(-\frac{5}{2}, 1)$ | $(+)(-)$ | - | 0 | $f(0) = -5 < 0$ |
| $(1, \infty)$ | $(+)(+)$ | + | 100 | $f(100) > 0$ |

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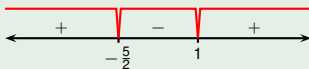
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$x \in ?$

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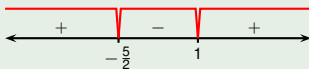
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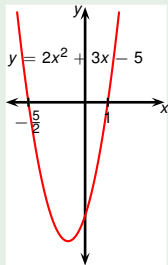
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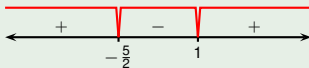
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