Sy mbolab

Solution

$$7 < 2 - 5x < 9 \quad : \quad \begin{bmatrix} \text{Solution:} & -\dfrac{7}{5} < x < -1 \\ \text{Decimal:} & -1.4 < x < -1 \\ \text{Interval Notation:} & \left(-\dfrac{7}{5},\, -1\right) \end{bmatrix}$$

Steps

$7 < 2 - 5x < 9$

$\left(7 < 2 - 5x\right)$ **and** $\left(2 - 5x < 9\right)$

Solve $7 < 2 - 5x$: $x < -1$ *Hide Steps* ⊖

$7 < 2 - 5x$

Switch sides

$2 - 5x > 7$

Subtract 2 from both sides

$2 - 5x - 2 > 7 - 2$

Simplify

$-5x > 5$

Multiply both sides by -1 $\left(\text{reverse the inequality}\right)$

$\left(-5x\right)\left(-1\right) < 5\left(-1\right)$

Simplify

$5x < -5$

Divide both sides by 5

$\dfrac{5x}{5} < \dfrac{-5}{5}$

Simplify

$x < -1$

Hide Steps ⊖

Solve $2 - 5x < 9$: $x > -\dfrac{7}{5}$

$2 - 5x < 9$

Subtract 2 from both sides

$2 - 5x - 2 < 9 - 2$

Simplify

$-5x < 7$

Multiply both sides by -1 $\left(\text{reverse the inequality}\right)$

$\left(-5x\right)\left(-1\right) > 7\left(-1\right)$

Simplify

$5x > -7$

Divide both sides by 5

$\dfrac{5x}{5} > \dfrac{-7}{5}$

Simplify

$x > -\dfrac{7}{5}$

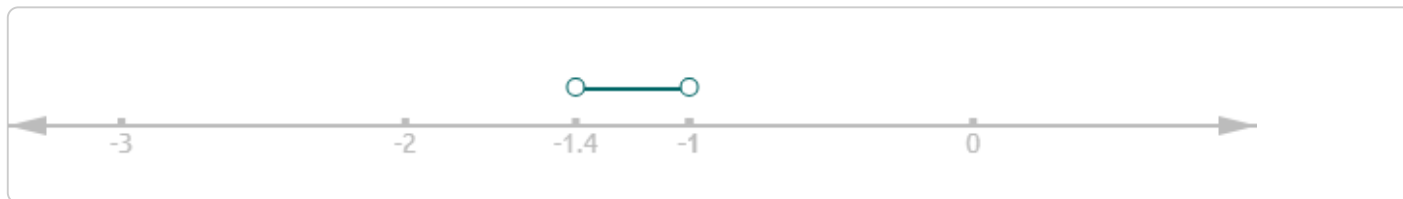$\left(x < -1\right)$ and $\left(x > -\dfrac{7}{5}\right)$

Combine the ranges

$-\dfrac{7}{5} < x < -1$

Number Line

Graph

Plotting: $-\dfrac{7}{5} < x < -1$