

Solve Linear Equations Worksheets (Distributive Property)

Find the value of x that makes the equation true.

1. $5(3x + 4) - 2x = 7x - 3(-2x + 11)$

2. $5(3x + 9) - 2x = 15x - 2(x - 5)$

3. $37x + \frac{1}{2} - \left(x + \frac{1}{4}\right) = 9(4x - 7) + 5$

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1. $5(3x + 4) - 2x = 7x - 3(-2x + 11)$

$$\begin{aligned}5(3x + 4) - 2x &= 7x - 3(-2x + 11) \\15x + 20 - 2x &= 7x + 6x - 33 \\13x + 20 &= 13x - 33 \\13x - 13x + 20 &= 13x - 13x - 33 \\20 &\neq -33\end{aligned}$$

This equation has no solution.

2. $5(3x + 9) - 2x = 15x - 2(x - 5)$

$$\begin{aligned}5(3x + 9) - 2x &= 15x - 2(x - 5) \\15x + 45 - 2x &= 15x - 2x + 10 \\13x + 45 &= 13x + 10 \\13x - 13x + 45 &= 13x - 13x + 10 \\45 &\neq 10\end{aligned}$$

Since $45 \neq 10$, the equation has no solution.

3. $37x + \frac{1}{2} - \left(x + \frac{1}{4}\right) = 9(4x - 7) + 5$

$$\begin{aligned}37x + \frac{1}{2} - \left(x + \frac{1}{4}\right) &= 9(4x - 7) + 5 \\37x + \frac{1}{2} - x - \frac{1}{4} &= 36x - 63 + 5 \\36x + \frac{1}{4} &= 36x - 58 \\36x - 36x + \frac{1}{4} &= 36x - 36x - 58 \\ \frac{1}{4} &\neq -58\end{aligned}$$

This equation has no solution.

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