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

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

$$5(3x + 4) - 2x = 7x - 3(-2x + 11)$$
$$15x + 20 - 2x = 7x + 6x - 33$$
$$13x + 20 = 13x - 33$$
$$13x - 13x + 20 = 13x - 13x - 33$$
$$20 \neq -33$$

This equation has no solution.

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

$$5(3x + 9) - 2x = 15x - 2(x - 5)$$
$$15x + 45 - 2x = 15x - 2x + 10$$
$$13x + 45 = 13x + 10$$
$$13x - 13x + 45 = 13x - 13x + 10$$
$$45 \neq 10$$

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

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

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

This equation has no solution.