

Linear Equations; $ax + b = cx + d$

Strategy

Transform equations into $ax + b = c$ format using the Properties of Real Numbers, then use the Order of Operations in reverse using the inverse (opposite) operation to isolate the variable.

First step, identify what is physically different in the problem from the $ax + b = c$ format, then get rid of it.

Example	Solve	$7x - 2 = 2x + 38$	
		$\frac{-2x}{5x - 2} = \frac{-2x}{+38}$	$\Rightarrow ax + b = c$ format
		$5x = 40$	
		$x = 8$	

Solve the following problems.

1. $3x + 5 = 10 + 2x$

2. $7x - 5 = 4x + 1$

3. $10x - 3 = 6x + 21$

4. $9x + 6 = 2x - 15$

5. $5x + 3 = 8x - 27$

6. $-2x + 3 = 6x - 43$

7. $-10x - 1 = -4x + 35$

8. $2x + 5 = 5x + 2$

9. $6x + 17 = 3x + 14$

10. $5 - 2x = 2x - 7$

11. $4x + 3 = -6 + 4x$

12. $5x + 1 = 2x + 1$

13. $6x - 3 = 7x + 6$

14. $8x + 4 = 3x - 21$

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Example	Solve	
		$7x - 2 = 2x + 38$
		$\underline{-2x \quad -2x}$
		$5x - 2 = +38$? $ax + b = c$ format
		$5x = 40$
		$x = 8$

Solve the following problems.

1. $5x + 7 = 2x + 19$

2. $4x - 3 = x + 12$

3. $6x + 8 = 3x + 20$

4. $7x - 5 = 2x + 20$

5. $8x + 4 = 5x + 19$

6. $3x + 11 = x + 21$

7. $9x - 7 = 4x + 18$

8. $5x + 6 = 3x + 16$

9. $4x + 9 = 2x + 17$

10. $6x - 8 = 2x + 12$

11. $7x + 10 = 5x + 18$

12. $8x - 6 = 4x + 14$

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		$5x = 40$
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Solve the following problems.

1. $3x + 5 = 5x + 1$

2. $7x - 4 = 9x - 14$

3. $6x + 2 = 8x - 8$

4. $5x + 7 = 7x - 3$

5. $4x - 9 = 6x - 19$

6. $8x + 1 = 10x - 11$

7. $9x - 5 = 11x - 17$

8. $7x + 3 = 10x - 12$

9. $5x - 8 = 8x - 20$

10. $6x + 10 = 9x - 8$

11. $4x + 6 = 7x - 9$

12. $3x - 7 = 5x - 17$

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Example	Solve	$7x - 2 = 2x + 38$	
		$\underline{-2x \quad -2x}$	
		$5x - 2 = +38$	ax + b = c format
		$5x = 40$	
		$x = 8$	

Solve the following problems.

1. $8x + 12 = 3x - 8$

2. $7x - 9 = 2x - 24$

3. $9x + 4 = 5x - 16$

4. $6x - 11 = 2x - 31$

5. $10x + 5 = 4x - 19$

6. $8x - 7 = 3x - 27$

7. $7x + 15 = 4x - 6$

8. $9x - 12 = 5x - 28$

9. $6x + 8 = 2x - 20$

10. $11x - 9 = 6x - 34$

11. $8x + 3 = 4x - 25$

12. $12x - 6 = 8x - 22$