

Solving linear equations

Notes

Key points :

- ~ stay organized
 - ~ simplify then check
 - ~ show all your work
 - ~ always check work *especially* with negative numbers
- one step at a time
with each step (combine like terms)
should be able to retrace your steps

$$-2(x - 3) = -2x + 6$$

$$-2(-x - 3) = 2x + 6$$

$$-2(x + 3) = -2x - 6$$

- ~ check your solution

Example 1

Solve for 'm'

$$7m - 3 + m + 11 = 5(m + 7) + 3$$

* Solve for 'm' means what number 'm' will make this true

Expand $7m + m - 3 + 11 = 5m + 35 + 3$

Simplify $8m + 8 = 5m + 38$

Constant $8m + 8 - 8 = 5m + 38 - 8$

Simplify $8m = 5m + 30$

Variable term $8m - 5m = 5m - 5m + 30$

Simplify $3m = 30$

Coefficient $\frac{3m}{3} = \frac{30}{3}$

Simplify $m = 10$

Check Does $7(10) - 3 + (10) + 11 = 5(10 + 7) + 3$?????

$$70 - 3 + 10 + 11 = 5(17) + 3$$

$$87 = 87$$

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Example 2

Solve for 'y' $8(y - 3) - 2y + 4 = 10 - 2(y + 6) - y$

Expand $8y - 24 - 2y + 4 = 10 - 2y - 12 - y$

Simplify $6y - 20 = -3y - 2$

Constant

Simplify

Variable term

Simplify

Coefficient

Simplify

Check

Example 3

Solve for 'a' $3(a - 5) + 2a + 18 = 17 - 3(a - 6)$

Expand

Simplify

Constant

Simplify

Variable term

Simplify

Coefficient

Simplify

Check