

## Equations with Variables on Both Sides

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**Solve each equation, if possible. If there is no solution, write "no solution"; if it is the identity situation, write "all real numbers".**

1)  $7m - 7 - 6m - 16 = 1 + 4m$

2)  $3 + 4n + n = 2n + 15$

3)  $11 + 2p = p + 4$

4)  $-7k - 4k = 8 - 2k - 8k$

5)  $-5 + 5(n - 7) = -40 + 5n$

6)  $8k - 6 = 6(k + 3) + 6k$

7)  $6x + 1 = -6(1 - x)$

8)  $-8(1 + 4p) + 7p = -25 - 8p$

9)  $4(3r + 4) = -8(2r + 5)$

10)  $2(-6m - 3) = 6(5m - 1)$

11)  $\frac{19}{4} - 3\frac{1}{2}a = -\frac{1}{4}a + \frac{3}{2}$

12)  $\frac{61}{28} + a = \frac{19}{4}a - \frac{11}{7}$

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1)  $7m - 7 - 6m - 16 = 1 + 4m$

 $\{-8\}$ 

2)  $3 + 4n + n = 2n + 15$

 $\{4\}$ 

3)  $11 + 2p = p + 4$

 $\{-7\}$ 

4)  $-7k - 4k = 8 - 2k - 8k$

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5)  $-5 + 5(n - 7) = -40 + 5n$

 $\{ \text{All real numbers.} \}$ 

6)  $8k - 6 = 6(k + 3) + 6k$

 $\{-6\}$ 

7)  $6x + 1 = -6(1 - x)$

No solution.

8)  $-8(1 + 4p) + 7p = -25 - 8p$

 $\{1\}$ 

9)  $4(3r + 4) = -8(2r + 5)$

 $\{-2\}$ 

10)  $2(-6m - 3) = 6(5m - 1)$

 $\{0\}$ 

11)  $\frac{19}{4} - 3\frac{1}{2}a = -\frac{1}{4}a + \frac{3}{2}$

 $\{1\}$ 

12)  $\frac{61}{28} + a = \frac{19}{4}a - \frac{11}{7}$

 $\{1\}$