Solving Equations with Unknowns on Both Sides

1. $5x + 7 = 2x + 31$
2. $5x + 7 = 2x - 23$
3. $2x - 23 = x + 7$
4. $2x - 23 = 7 - x$
5. $2x - 23 = 7 - 2x$
6. $2x = 7 - 2x$
7. $2x = 3(2x - 4)$
8. $2x + 6 = 3(2x - 4)$
9. $2(x + 3) = 3(2x - 4)$
10. $2(3 + x) = 3(2x - 4)$
11. $-2(3 + x) = 3(2x - 4)$
12. $-2(3 + x) = -3(2x - 4)$
13. $\frac{x}{2} = 3(2x - 11)$
14. $\frac{x}{4} = 3(2x - 11)$
15. $\frac{x}{4} - 1 = 3(2x - 11)$

Why is it not possible to solve the following? Explain your answer clearly!

$$2x + 3 = 10 + 2x$$

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$$2x + 3 = 10 + 2x$$

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– ANSWERS

1. $5x + 7 = 2x + 31 \;\; x = 8$
2. $5x + 7 = 2x - 23 \;\; x = -10$
3. $2x - 23 = x + 7 \;\; x = 30$
4. $2x - 23 = 7 - x \;\; x = 10$
5. $2x - 23 = 7 - 2x \;\; x = 7.5 \text{ or } \frac{15}{2}$
6. $2x = 7 - 2x \;\; x = \frac{7}{4} \; or \; 1.75$
7. $2x = 3(2x - 4) \;\; x = 3$
8. $2x + 6 = 3(2x - 4) \;\; x = \frac{9}{2} or \; 4.5$
9. $2(x + 3) = 3(2x - 4) \;\; x = \frac{9}{2} \; or \; 4.5$
10. $2(3 + x) = 3(2x - 4) \;\; x = \frac{9}{2} or \; 4.5$
11. $-2(3 + x) = 3(2x - 4) \;\; x = \frac{3}{4} or \; 0.75$
12. $-2(3 + x) = -3(2x - 4) \;\; x = \frac{9}{2} or \; 4.5$
13. $\frac{x}{2} = 3(2x - 11) \quad x = 6$
14. $\frac{x}{2} = 3(x - 11) \;\; x = \frac{66}{5} or \; 13.2$
15. $\frac{x}{2} - 1 = 3(x - 11)$

    $x = 12.8 \; or \; x = \frac{64}{5}$

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