Lesson 5.4

Solve the following equations. Some equations will have a single answer, others will have no solution, and still others will have infinite solutions.

1. $2x + 2x + 2 = 4x + 2$

2. $3(x - 1) = 2x + 9$

3. $2x + 8 = 2(x + 4)$

4. $2x - x + 7 = x + 3 + 4$

5. $-2(x + 1) = -2x + 5$

6. $4x + 2x + 2 = 3x - 7$

7. $2(x + 2) + 3x = 2(x + 1) + 1$

8. $4(x - 1) = \frac{1}{2}(x - 8)$

9. $x + 2x + 7 = 3x - 7$

10. $3x - x + 4 = 4(2x - 1)$

11. $4(2x + 1) = 5x + 3x + 9$

12. $10 + x = 5(\frac{1}{5}x + 2)$

13. $8(x + 2) = 2x + 16$

14. $3 + \frac{3}{2}x + 4 = 4x - \frac{5}{2}x$

15. $\frac{3}{2}(2x + 6) = 3x + 9$

16. $\frac{1}{2}(2-4x)+2x=13$

17. $12+2x-x=9x+6$

18. $4x+1=2(2x+3)$

19. $4(x+3)-4=8\left(\frac{1}{2}x+1\right)$

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

21. $5(x+2)-3x=2(x+5)$

22. $3x+1=3(x-1)+4$

23. $4x+2x-5=7x-1$

24. $-2(x+1)=2(x-1)$

25. $2(x+5)=2x+5$

26. $2(3x+3)=3(2x+2)$

27. $2x+1-4=-2x-3$

28. $4(x+1)=4(2-x)$

29. $3x+7x+1=2(5x+1)$

30. $6(x+1)+5=13-2+6x$

Lesson 5.4 Key

Solve the following equations. Some equations will have a single answer, others will have no solution, and still others will have infinite solutions.

1. $2x + 2x + 2 = 4x + 2$

∞ many

2. $3(x - 1) = 2x + 9$

$3x - 3 = 2x + 9$

$x = 12$

3. $2x + 8 = 2(x + 4)$

$2x + 8 = 2x + 8$

∞ many

4. $2x - x + 7 = x + 3 + 4$

$x + 7 = x + 7$

∞ many

5. $-2(x + 1) = -2x + 5$

$-2x - 2 = -2x + 5$

NS

6. $4x + 2x + 2 = 3x - 7$

$6x + 2 = 3x - 7$

$3x = -9$

$x = -3$

7. $2(x + 2) + 3x = 2(x + 1) + 1$

$2x + 4 + 3x = 2x + 2 + 1$

$5x + 4 = 2x + 3$

$3x = -1$

$x = -\frac{1}{3}$

8. $4(x - 1) = \frac{1}{2}(x - 8)$

$4x - 4 = \frac{1}{2}x - 4$

$\frac{7}{2}x = 0$

$x = 0$

9. $x + 2x + 7 = 3x - 7$

$3x + 7 = 3x - 7$

NS

10. $3x - x + 4 = 4(2x - 1)$

$2x + 4 = 8x - 4$

$-6x = -8$

$x = \frac{4}{3}$

11. $4(2x + 1) = 5x + 3x + 9$

$8x + 4 = 8x + 9$

NS

12. $10 + x = 5(\frac{1}{5}x + 2)$

$10 + x = x + 10$

∞ many

13. $8(x + 2) = 2x + 16$

$8x + 16 = 2x + 16$

$6x = 0$

$x = 0$

14. $3 + \frac{3}{2}x + 4 = 4x - \frac{5}{2}x$

$\frac{3}{2}x + 7 = \frac{3}{2}x$

$4 = 0$

$4 = 3x$

$x = \frac{4}{3}$

NS

15. $\frac{3}{2}(2x + 6) = 3x + 9$

$3x + 9 = 3x + 9$

∞ many

16. $\frac{1}{2}(2-4x)+2x=13$

$1-2x+2x=13$

$1\neq 13$

NS

17. $12+2x-x=9x+6$

$12+x=9x+6$

$6=8x$

$\frac{3}{4}=x$

18. $4x+1=2(2x+3)$

$4x+1=4x+6$

NS

$1\neq 6$

19. $4(x+3)-4=8\left(\frac{1}{2}x+1\right)$

$4x+12-4=4x+8$

$8=8$

∞ many

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

$6x+4=6x-3$

NS

$4\neq -3$

21. $5(x+2)-3x=2(x+5)$

$5x+10-3x=2x+10$

$10=10$

$2x+10=2x+10$

∞ many

22. $3x+1=3(x-1)+4$

$=3x-3+4$

$3x+1=3x+1$

$1=1$

∞ many

23. $4x+2x-5=7x-1$

$6x-5=7x-1$

$-4=x$

24. $-2(x+1)=2(x-1)$

$-2x-2=2x-2$

$-4x=0$

$x=0$

25. $2(x+5)=2x+5$

$2x+10=2x+5$

NS

$10\neq 5$

26. $2(3x+3)=3(2x+2)$

$6x+6=6x+6$

∞ many

$6=6$

27. $2x+1-4=-2x-3$

$2x-3=-2x-3$

$4x=0$

$x=0$

28. $4(x+1)=4(2-x)$

$4x+4=8-4x$

$8x=4$

$x=\frac{1}{2}$

29. $3x+7x+1=2(5x+1)$

$10x+1=10x+2$

NS

$1\neq 2$

30. $6(x+1)+5=13-2+6x$

$6x+6+5=11+6x$

$6x+11=11+6x$

$11=11$

∞ many