

15. $12[3(17 - 6) - 7 \cdot 4] = 12[3(11) - 7 \cdot 4]$
 $= 12[33 - 28]$
 $= 12[5]$
 $= 60$

16. $14 - a + b = 14 - 10 + 8$
 $= 4 + 8$
 $= 12$

17. $2b - d = 2(8) - 12$
 $= 16 - 12$
 $= 4$

18. $d - c = 12 - 6$
 $= 6$

19. $c + (d - b) = 6 + (12 - 8)$
 $= 6 + 4$
 $= 10$

20. $5a + 4b = 5(10) + 4(8)$
 $= 50 + 32$
 $= 82$

21. $\frac{a}{b+2} = \frac{10}{8+2}$
 $= (10) \div (8 + 2)$
 $= 10 \div 10$
 $= 1$

22. $ab - cd = (10)(8) - (6)(12)$
 $= 80 - 72$
 $= 8$

23. $6(d - b) = 6(12 - 8)$
 $= 6(4)$
 $= 24$

24. $n + 7$

25. $10n$

26. $2n$

27. $b + 10$

28. $4 + 2w$

29. $r - 12$

30. additive identity

31. commutative addition

32. associative addition

33. associative multiplication

34. multiplicative property of zero

35. identity multiplication

36. $7 \cdot 8 + 7 \cdot 3 = 7(8 + 3)$
 $= 7(11)$
 $= 77$

37. $n + 7n = 1n + 7n$
 $= n(1 + 7)$
 $= n(8)$
 $= 8n$

38. $7b + 12b - 10 = b(7 + 12) - 10$
 $= b(19) - 10$
 $= 19b - 10$

39. $16x + 2x + 8 = x(16 + 2) + 8$
 $= x(18) + 8$
 $= 18x + 8$

40. $8(5ab + 4) - 3(2ab + 2) = 8 \cdot 5ab + 8 \cdot 4 +$
 $3 \cdot 2ab + 3 \cdot 2$
 $= 40ab + 32 + 6ab + 6$
 $= 40ab + 6ab + 32 + 6$
 $= ab(40 + 6) + 38$
 $= ab(46) + 38$
 $= 46ab + 38$

41. $2(x + y) + 8(x + 3y) = 2(x) + 2(y) + 8(x) + 8(3y)$
 $= 2x + 2y + 8x + 24y$
 $= 2x + 8x + 2y + 24y$
 $= x(2 + 8) + y(2 + 24)$
 $= 10x + 26y$

42. $10(u - 3) + 4(5 - u) = 10 \cdot u + 10 \cdot 3 + 4 \cdot 5 + 4 \cdot u$
 $= 10u + 30 + 20 + 4u$
 $= 10u + 4u + 30 + 20$
 $= u(10 + 4) + 50$
 $= u(14) + 50$
 $= 14u + 50$

43. $15 - h = 9$ $15 - h = 9$
 $15 - 4 = 9$ $15 - 6 = 9$
 $11 = 9$ $9 = 9$
This sentence is false. This sentence is true.
The solution is 6.

$15 - h = 9$
 $15 - 7 = 9$
 $8 = 9$
This sentence is true.

44. $7 = \frac{m}{4}$ $7 = \frac{m}{4}$
 $7 = m \div 4$ $7 = m \div 4$
 $7 = 21 \div 4$ $7 = 28 \div 4$
 $7 = 5.25$ $7 = 7$
This sentence is false. This sentence is true.
The solution is 28.

$7 = \frac{m}{4}$
 $7 = m \div 4$
 $7 = 35 \div 4$
 $7 = 8.75$
This sentence is false.

45. $5b = 45$ $5b = 45$
 $5 \cdot 7 = 45$ $5 \cdot 9 = 45$
 $35 = 45$ $45 = 45$
This sentence is false. This sentence is true.
The solution is 9.

$5b = 45$
 $5 \cdot 11 = 45$
 $55 = 45$
This sentence is false.

46. $18 - n = 18$ $18 - n = 18$
 $18 - 18 = 18$ $18 - 1 = 18$
 $0 = 18$ $17 = 18$
This sentence is false. This sentence is false.
 $18 - n = 18$
 $18 - 0 = 18$
 $18 = 18$
This sentence is true.
The solution is 0.