

Name \_\_\_\_\_

**Use the commutative property of addition to write an equivalent algebraic expression.**

1)  $x + 7$

2)  $x + 11$

3)  $5 + 9x$

4)  $8x + 6y$

5)  $2(x + 5)$

6)  $2 + 4x$

7)  $7x + 5y$

8)  $8(x + 4)$

**Use the commutative property of multiplication to write an equivalent algebraic expression.**

9)  $7x$

10)  $x + y8$

11)  $4x + 5$

12)  $7(x + 9)$

**Use an associative property to rewrite the algebraic expression. Once grouping has been changed, simplify the resulting algebraic expression.**

13)  $8 + (4 + x)$

14)  $7 + (3 + x)$

15)  $9(3x)$

16)  $5(3x)$

Use the distributive property to rewrite the algebraic expression without parentheses. Simplify.

17)  $8(x + 7)$

18)  $2(7x + 3)$

19)  $\frac{1}{3}(9x + 6)$

20)  $7(x - 6)$

21)  $9(3x - 6)$

22)  $\frac{1}{4}(12x - 8)$

23)  $(10x + 2)5$

24)  $5(3x + 9 + y)$

25)  $7(3x + 6 + 2y)$

Simplify the algebraic expression.

26)  $6x + 4x$

27)  $9x - 4x$

28)  $7a + 4 - 3a$

29)  $7y + 1 - 4y + 8$

30)  $9a + 5 - 4a$

31)  $7y + 8 - 3y + 1$

32)  $2 + (x - 4)$

33)  $7(2x + 5) - 3$

34)  $4 + 2(5x - 1)$

35)  $10(2a + 4b) + 3(3a + 6b)$

**Write the English phrase as an algebraic expression, then simplify the expression. Let  $x$  represent the number.**

36) The difference of 8 times a number and 4 times the number

37) The difference of 6 times a number and 4 times the number

38) The difference of 7 times a number and 4 times the number

39) The difference of 7 times a number and 3 times the number

40) The product of 6 and a number, which is then added to the product of 14 and the number.

41) The product of 4 and a number, which is then added to the product of 13 and the number.

42) The product of 5 and a number, which is then added to the product of 12 and the number.

43) nine times the product of 4 and a number.

44) nine times the product of 5 and a number.

45) seven times the sum of 4 and a number.

46) nine increased by the product of 4 and two less than a number.

47) nine increased by the product of 4 and one less than a number.

48) The product of 6 and a number, which is then added to the product of 13 and the number.

49) six times the product of 3 and a number.

50) seven times the sum of 5 and a number.

51) ten increased by the product of 3 and one less than a number.

## Answer Key

Testname: 01.4V01B

- 1)  $7 + x$
- 2)  $11 + x$
- 3)  $9x + 5$
- 4)  $6y + 8x$
- 5)  $2(5 + x)$
- 6)  $4x + 2$
- 7)  $5y + 7x$
- 8)  $8(4 + x)$
- 9)  $x7$
- 10)  $x + 8y$
- 11)  $x4 + 5$
- 12)  $(x + 9)7$
- 13)  $(8 + 4) + x$ ;  $12 + x$
- 14)  $(7 + 3) + x$ ;  $10 + x$
- 15)  $(9 \cdot 3)x$ ;  $27x$
- 16)  $(5 \cdot 3)x$ ;  $15x$
- 17)  $8x + 56$
- 18)  $14x + 6$
- 19)  $3x + 2$
- 20)  $7x - 42$
- 21)  $27x - 54$
- 22)  $3x - 2$
- 23)  $50x + 10$
- 24)  $15x + 45 + 5y$
- 25)  $21x + 42 + 14y$
- 26)  $10x$
- 27)  $5x$
- 28)  $4a + 4$
- 29)  $3y + 9$
- 30)  $5a + 5$
- 31)  $4y + 9$
- 32)  $x - 2$
- 33)  $14x + 32$
- 34)  $10x + 2$
- 35)  $29a + 58b$
- 36)  $8x - 4x$ ;  $4x$
- 37)  $6x - 4x$ ;  $2x$
- 38)  $7x - 4x$ ;  $3x$
- 39)  $7x - 3x$ ;  $4x$
- 40)  $14x + 6x$ ;  $20x$
- 41)  $13x + 4x$ ;  $17x$
- 42)  $12x + 5x$ ;  $17x$
- 43)  $9(4x)$ ;  $36x$
- 44)  $9(5x)$ ;  $45x$
- 45)  $7(x + 4)$ ;  $7x + 28$
- 46)  $9 + 4(x - 2)$ ;  $4x + 1$
- 47)  $9 + 4(x - 1)$ ;  $4x + 5$
- 48)  $13x + 6x$ ;  $19x$
- 49)  $6(3x)$ ;  $18x$
- 50)  $7(x + 5)$ ;  $7x + 35$

Answer Key

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51)  $10 + 3(x - 1); 3x + 7$