NAME_____

Module 1   Number Sense
Lesson 3   Properties of Addition and Multiplication and
             Inverse Operations

Independent Practice

1.3

Name the property shown.

1. $7 + (19 + 4) = (7 + 19) + 4$ **Associative Property of Addition**

2. $197 \times 1 = 197$ **Identity Property of Multiplication**

3. $76 \times 0 = 0$ **Multiplicative Property of Zero**

4. $13 \times 16 = 16 \times 13$ **Commutative Property of Multiplication**

5. $110 + 0 = 110$ **Identity Property of Addition**

6. $(3 \times 15) \times 11 = 3 \times (15 \times 11)$ **Associative Property of Multiplication**

7. $10 + (16 + 9) = (16 + 9) + 10$ **Commutative Property of Addition**

8. $(8 + 5) + 3(7 \times 4) = 8 + [5 + (3 \times 7)4]$ **Associative Property of Addition, Associative Property of Multiplication**

Simplify using mental math.

9. $19 + 43 + 81$
   143

10. $27 + 8 + 73 + 32$
    140

11. $39 + 21 + 17 + 61$
    138

12. $46 + 9 + 41 + 4$
    100

13. 50×76
    3,800

14. $2 \times 98 \times 5$
    980

15. $4 \times 54 \times 25$
    5,400

16. $20 \times 15 \times 5 \times 6$
    9,000

17. $240 \times 25 + 180 \times 50$
    15,000

18. $(36)(5)(10) + (114)(50)$
    7,500

Solve and give a reason for each step.

19. $20 \times (27 \times 5)$
    $(20 \times 27) \times 5$
        Associative Property
    $(27 \times 20) \times 5$
        Commutative Property
    $27 \times (20 \times 5)$
        Associative Property
    27×100 Multiplication
    2,700   Multiplication

20. $33 + 45 + 17 + 25$
    $33 + 17 + 45 + 25$
        Commutative Property
    $(33 + 17) + (45 + 25)$
        Associative Property
    $50 + 70$ Addition
    120   Addition

1. Explain how the Associative Properties of Addition and Multiplication can help with mental math.

2. Explain the difference between the Identity Properties of Addition and Multiplication.

Cumulative Review

Evaluate each of the following.

1. $(9 + 21)(49 - 19)$
900

2. $(9 - 5)(8 + 6) \div 7$
8

3. $25 + 5 \times [30 \div (27 - 17)]$
40

4. $[60 \div (7 + 8)] \times [90 \div (12 - 9)]$
120

5. $10[(44 \div 4) - 3(9 - 7)]^2$
250

6. $(36 \div 3)^2 \div [36 - (6)(4) - (66 \div 6)]$
144

Determine if each number is divisible by 2, 3, 4, 5, 6, 9, or 10.

7. 580
divisible by 2, 4, 5, and 10, not by 3, 6, or 9

8. 6,916
divisible by 2 and 4, not by 3, 5, 6, 9, or 10

9. 12,675
divisible by 3 and 5, not by 2, 4, 6, 9, or 10

10. 28,764
divisible by 2, 3, 4, 6, and 9, not by 5 or 10

Possible Journal Answers

1. **The Associative Properties of Addition and Multiplication allow me to regroup numbers to make the problem easier to solve mentally. Since changing the order of addends or factors does not change the result, I can add or multiply the numbers in any order. For example, to add 45 + 17 + 55, I can first add 45 + 55 to get 100, and then add 100 + 17. Similarly, to multiply $25 \times 35 \times 4$, first multiply 25×4 to get 100, then multiply 100×17.**

2. **The Identity Property of Addition states that the sum of a number when added to zero is that number; the key addend in the property is zero. The Identity Property of Multiplication states that the product of one and any number is that number; the key factor in the property is one.**