Lesson 4-8: Analyze Equivalent Expressions

1. Sample answer: Equivalent expressions can show the product of terms in a problem represented with fewer terms or as an expanded expression.

2. 41.25 + 5.5x; Sample answer: Each term in the equivalent expression represents the area of one part of the mural. The first term represents the area of the original mural and the second term represents the area of the part that was added.

3. If you use the Distributive Property in reverse you can factor a two from (2x + 6) to create 2(x + 3), so there are two sides that each have a length of (x + 3).

4. Sample answers:
   2(6x + 4); 4x + 3 + 8x + 5;
   4(3x + 2). The quantities that all three expressions represent are equivalent.

5. a. 3(3x + 5)
   b. 3x + 5

6. Sample answer:
   x - 0.35x = 1x - 0.35x = 0.65x;
   Rewriting the expression shows that 35% off the original cost is equivalent to 65% of the original cost.

7. Sample answer: Expression 1 shows the difference between the cost of the two rooms. Expression 2 shows that the booking fee for the Ocean Room is $39 more than the Harbor Room and is $14 more per guest. Expressions 1 and 2 are equivalent.

8. 0.83b

9. 7c

10. 0.86c

11. a. 0.92v and 1v - 0.08v
    b. Sample answer: Multiply v by 0.92; multiply 0.08 by v and subtract the product from v.

12. d(1 + 0.49) and 1.49d

13. Sample answer: 22(16 + x);
    Possible length: 22,
    possible width: 16 + x

14. a. 1.07t
    b. $21.40

15. a. 0.85n + s
       n - 0.15n + s

    b. (n + s) - 0.10(n + s)
       0.9(n + s)

    c. The customer should choose the "15% off sale on all pants" option. When the original costs are substituted into each expression, the final price of the first option is $31.25. The final price of the second option is $31.50.

16. a. 1.10b
    b. Sample answer: If the cost increases by 10%, you can multiply the former cost by 110%.