Name

8-1B Lesson Master

Questions on SPUR Objectives
See Student Edition pages 574–577 for objectives.

SKILLS Objective A

1. Consider the functions defined by $g(x) = x^2 + 2x + 1$ and $h(x) = 2x - 3$.

   a. Evaluate $g(h(4))$. _____ b. Evaluate $h(g(4))$. _____

   c. The function $g \circ h$ maps $-\frac{1}{4}$ onto what number? _____

In 2–11, let $f(x) = -2x^2$ and $g(x) = 6x + 1$.

2. Evaluate $f(g(2))$. _____ 3. Evaluate $g(f(2))$. _____

4. Evaluate $f(g(-3))$. _____ 5. Evaluate $g(f(-3))$. _____

6. Evaluate $f(f(0))$. _____ 7. Evaluate $g(g(0))$. _____

8. Evaluate $f(g(0))$. _____ 9. Evaluate $g(f(0))$. _____

10. Find an expression for $f(g(x))$. _____

11. Find an expression for $g(f(x))$. _____

In 12–21, $r(n) = \frac{1}{2n}$ and $s(n) = -4n - 8$.

12. Evaluate $r(s(1))$. _____ 13. Evaluate $s(r(1))$. _____

14. Evaluate $r(r(3))$. _____ 15. Evaluate $s(s(-2))$. _____

16. Find an expression for $r(s(n))$. _____

17. Find an expression for $s(r(n))$. _____

18. State the restrictions, if any, on the domain of $r \circ s$. _____

19. State the restrictions, if any, on the domain of $s \circ r$. _____

20. State the restrictions, if any, on the domain of $r \circ r$. _____

21. State the restrictions, if any, on the domain of $s \circ s$. _____

22. Suppose that $j(p) = \frac{1}{p}$ and $k(p) = \sqrt{p}$.

   a. Find $j(k(p))$. _____

   b. State the restrictions on the domain of $j \circ k$. _____

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In 23–25, rules for functions g and h are given. Does $g \circ h = h \circ g$? Justify your answer.

23. $g: m \to m - 9$ $h: m \to m + 9$

24. $g(n) = 3n + 5$ $h(n) = 3n - 5$

25. $g: r \to r + 5$ $h: r \to -r + 5$

In 26–31, suppose $p(x) = x^2$ and $q(x) = x^4$. Write an expression for

26. $p \circ q(x)$. _____ 27. $q \circ p(x)$. _____

28. $p(x) \cdot q(x)$. _____ 29. $q(x) \cdot p(x)$. _____

30. $p \circ p(x)$. _____ 31. $q \circ q(x)$. _____

USES Objective H

In 32–35, use the following information: the Smith's family room has seven windows.

32. Let c be the cost of drapes for one window. Write an equation for $f(c)$, the cost of drapes for the family room. _____

33. The drapes for each window use 12.2 yards of fabric, and the cost of the labor to make the drapes is \$25 per window. If the fabric costs y dollars per yard, write an equation for $w(y)$, the cost of drapes for one window. _____

34. Write an equation for the cost of drapes for the family room. _____

35. Mrs. Smith picks fabric that costs \$15.75 per yard.

    a. What is the cost of the fabric for the drapes in the family room? _____

    b. What is the cost of the labor for the drapes in the family room? _____

    c. What is the cost of the drapes for the family room? _____