NAME _____ DATE _____

Practice 20

FOR USE WITH SECTION 4.1

For each function:

a. Graph the function and its inverse in the same coordinate plane.

b. Find an equation for the inverse.

1. $f(x) = -\frac{1}{2}x$ **2.** $f(x) = 3x$ **3.** $f(x) = \frac{3}{4}x$ **4.** $y = -4x$

5. $y = 2x - 5$ **6.** $y = -\frac{1}{3}x + 2$ **7.** $g(x) = \frac{5}{2}x + 1$ **8.** $h(x) = -2x + 7$

9. $f(x) = \frac{4}{5}x + 2$ **10.** $f(x) = -5x + 8$ **11.** $y = -\frac{1}{4}x + 3$ **12.** $y = \frac{2}{3}x - 6$

13. On a hiking trip, Young Mee came to a sign that told her she had already hiked 4 mi. She calculated that her average pace from that point on would be 2.4 mi/h.

a. Write an equation giving Young Mee's total hiking distance D as a function of the time t that she hikes beyond the sign.

b. Find the inverse of the function from part (a).

c. Use the inverse function to find the time it would take Young Mee to hike to the end of the trail, a total of 7.2 mi.

14. An on-line computer service has a basic charge of $12 per month for 10 hours of use, and charges $1.60 for every hour over 10.

a. Write an equation giving the charge C as a function of the number of hours t that the service is used in a month. (Assume that at least 10 hours are used.)

b. Find the inverse of the function from part (a).

c. Use the inverse function to find out how many hours you could spend on-line in a month and still keep the monthly charge to at most $24.

15. Open-ended Problem Describe a situation that can be modeled by a function of the form $y = ax + b$. Find the inverse function and explain how this function could be used to find a value of x, given a value of y. Give a specific example, including numerical values.