**Determine whether the function f is one-to-one. (Hint: graph and use the horizontal line test.)**

1. f(x) = 3x - 7 2. f(x) = x2 - 9 3. f(x) =

  

4. f(x) = |x| 5. f(x) = 6. f(x) =

  

**Prove that f and g are inverse functions of each other and sketch the graphs of f and g on the same coordinate plane.**

7. f(x) = 3x - 2 ; g(x) = 8. f(x) = -x2 + 3, x ≥ 0; g(x) = , x ≤ 3

 

**Find the inverse function of f.**

9. f(x) = 3x + 5 10. f(x) = 11. f(x) =

12. The table lists the total numbers of radio stations in the United States for certain years.

|  |  |
| --- | --- |
| Year | Number |
| 1950 | 2773 |
| 1960 | 4133 |
| 1970 | 6760 |
| 1980 | 8566 |
| 1990 | 10,819 |

(a) Plot the data.

(b) Determine a linear function f(x) = ax + b that models these data, where x is the year. Plot f and the data on the same coordinate axes.

(c) Find f-1(x). Explain the significance of f-1.

(d) Use f-1 to predict the year in which there were 7744 radio stations.