Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3.1 Practice

***Determine whether each relation represents a function. For each function, state the domain and range.***

1. {(-2,4),(-2,6),(0,3),(3,7)} 2. {(0,-2),(1,3),(2,3),(3,7)} 3. {(-4,4),(-3,3),(-2,2),(-1,1),(0,-4)}

***Determine whether the equation is a function.***

4. 5. 6.

***Find the domain of each function.***

7. 8.

9. 10.

***For the given functions f and g, find the following functions and state the domain of each.***

***a) f + g b) f – g c) f*** ***g d)***

***e) f) g) h)***

11. 12.

13. 14.

15. ***Express the area A of a rectangle as function of the length x if the length of the rectangle is twice its width.***

16. ***A Boeing 747 crosses the Atlantic Ocean (3000 miles) with an airspeed of 500 miles per hour. The cost C (in dollars) per passenger is given by***

***where x is the ground speed (airspeed*** ± ***wind).***

1. ***What is the cost per passenger for quiescent (no wind) conditions?***
2. ***What is the cost per passenger with a head wind of 50 miles per hour?***
3. ***What is the cost per passenger with a tail wind of 100 miles per hour?***
4. ***What is the cost per passenger with a head wind of 100 miles per hour?***

17. ***Suppose that I(x) represents the income of an individual in year x before taxes and T(x) represents the individual’s tax bill in year x. Determine a function N that represents the individual’s net income (income after taxes) in year x.***