4.1 Practice – Writing Equations to Describe Patterns

**1.** The pattern in this table continues. What is the equation that relates the figure number, *n,* to the perimeter of the figure, *P*?

|  |  |
| --- | --- |
| Figure Number, *n* | Perimeter, *P* |
| 1 | 7 |
| 2 | 10 |
| 3 | 13 |
| 4 | 16 |

**2.** The pattern in each table below continues. For each table:

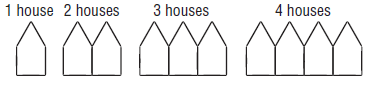
**i)** Describe the pattern that relates *v* to *t*.

**ii)** Write an equation that relates *v* to *t*.

**iii)** Verify your equation by substituting values from the table.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| a) | Term Number, *t* | Term Value, *v* | b) | Term Number, *t* | Term Value, *v* |
|  | 1 | 8 |  | 1 | 34 |
|  | 2 | 13 |  | 2 | 31 |
|  | 3 | 18 |  | 3 | 28 |
|  | 4 | 23 |  | 4 | 25 |

**3.** Here is a pattern made with toothpicks. Make a table and write an equation that relates the number of toothpicks, *t*, to the number of houses, *h*.



**4.** Rachel takes care of homes during the summer while their owners are away on vacation. She charges $8, plus $2.50 a day.

**a)** Create a table that shows the charges when the owners are away for up to 5 days.

**b)** Write an equation that relates the charge, *C* dollars, to the number of days, *n*,   
that the owners are away.

**c)** What will the charge be when the owners are away for 14 days?

**d)** For how many days were the owners away when the charge was $33?

4.1 Practice – Answers

**1.** *P* = 3*n* + 4

**2. a) i)** as *t* increases by 1, *v* increases by 5.

**ii)** *v* = 5*t* + 3

**b) i)** as *t* increases by 1, *v* decreases by 3.

**ii)** *v* = – 3*t* + 37

**3.** *t* = 4*h* + 1

**4.** **b)** *C* = 2.50*n* + 8 **c)** $43 **d)** 10 days