Domain and Range

1. For each relation below:

• Determine whether the relation is a function. Justify your answer.

• Identify the domain and range of each relation that is a function.

1. A relation that associates a number with a prime factor of the number:
{(4, 2), (6, 2), (6, 3), (8, 2), (9, 3)}

**2.** The table shows the costs of student bus tickets, *C* dollars, for different numbers
of tickets, *n*.

|  |  |
| --- | --- |
| **Number of Tickets,** ***n*** | **Cost, *C* ($)** |
| 1 | 1.75 |
| 2 | 3.50 |
| 3 | 5.25 |
| 4 | 7.00 |
| 5 | 8.75 |

1. Why is this relation also a function?
2. Identify the independent variable and the dependent variable. Justify your choices.

**c)** Write the domain and range.

3. The equation *C =* 25*n* + 1000 represents the cost, *C* dollars, for a feast following an Arctic sports competition, where *n* is the number of people attending.

**a)** Describe the function. Write the equation in function notation.

**b)**Determine the value of *C*(100). What does this number represent?

**c)** Determine the value of *n* when *C*(*n*) = 5000. What does this number represent?

**4.** Which of these graphs represents a function? Justify your answer.

**a)**  **b)** 

**5.** Determine the domain and range of the graph of each function.

**a) b)** 

**6.** This graph shows the approximate height of the tide, *h* metres,
as a function of time, *t*, at Port Clements, Haida Gwaii on June 17, 2009.


1. Identify the dependent variable and the independent variable. Justify your choices.
2. Why are the points on the graph connected? Explain.

**c)** Determine the domain and range of the graph.

**7.** Here is a graph of the function *g*(*x*) = 4*x* – 3.



1. Determine the range value when the domain value is 3.

**b)** Determine the domain value when the range value is –7.

**8.** Which table of values represents a linear relation? Justify your answer.

**a)** The relation between the number of bacteria in a culture, *n*, and time, *t* minutes.

|  |  |
| --- | --- |
| ***t***  | ***n*** |
|  0 |  1 |
|  20 |  2 |
|  40 |  4 |
|  60 |  8 |
|  80 | 16 |
| 100 | 32 |

**b)** The relation between the amount of goods and services tax charged, *T* dollars, and the amount of the purchase, *A* dollars

|  |  |
| --- | --- |
| ***A*** | ***T*** |
|  60 |  3 |
| 120 |  6 |
| 180 |  9 |
| 240 | 12 |
| 300 | 15 |