

NRF 10 – Unit 5 – Review - CYU

1. Animals can be associated with the classes they are in.

Animal	Class
ant	Insecta
eagle	Aves
snake	Reptilia
turtle	Reptilia
whale	Mammalia

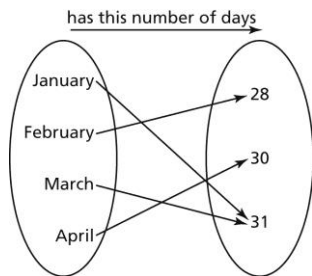
- a) Describe this relation in words.
b) Represent this relation:
i) as a set of ordered pairs
ii) as an arrow diagram

2. 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.

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

b)



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

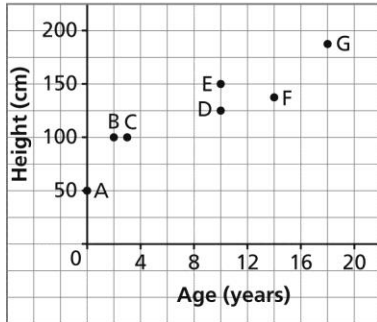
Number of Tickets, n	Cost, C (\$)
1	1.75
2	3.50
3	5.25
4	7.00
5	8.75

- a) Why is this relation also a function?
b) Identify the independent variable and the dependent variable. Justify your choices.
c) Write the domain and range.

4. The equation $C = 25n + 1000$ represents the cost, C dollars, for a feast following an Arctic sports competition, where n is the number of people attending.
- Describe the function. Write the equation in function notation.
 - Determine the value of $C(100)$. What does this number represent?
 - Determine the value of n when $C(n) = 5000$. What does this number represent?

5. Each point on this graph represents a person. Explain your answer to each question below.

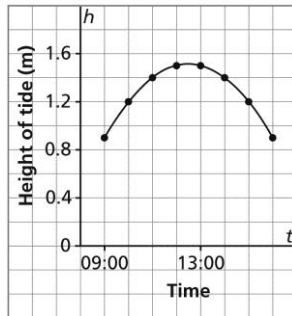
Ages and Heights of People



- Which person is the oldest? What is her or his age?
- Which person is the youngest? What is her or his age?
- Which two people have the same height? What is this height?
- Which two people have the same age? What is this age?
- Which of person B or C is taller for her or his age?

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.

Height of Tide at Port Clements,
June 17, 2009

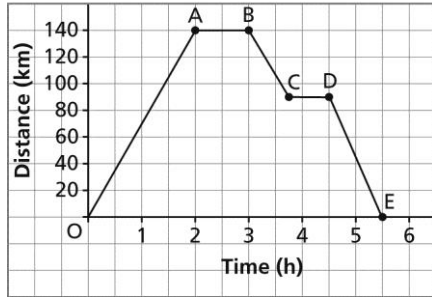


- Identify the dependent variable and the independent variable. Justify your choices.
- Why are the points on the graph connected? Explain.
- Determine the domain and range of the graph.

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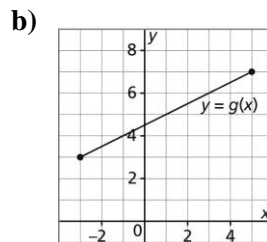
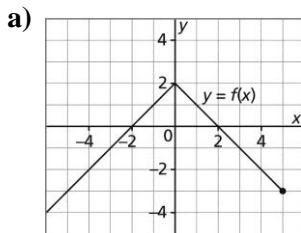
7. This graph represents a day trip from Athabasca to Kikino in Alberta, a distance of approximately 140 km. Describe the journey for each segment of the graph.

Day Trip from Athabasca to Kikino



Segment	Journey
OA	
AB	
BC	
CD	
DE	

8. Determine the domain and range of the graph of each function.

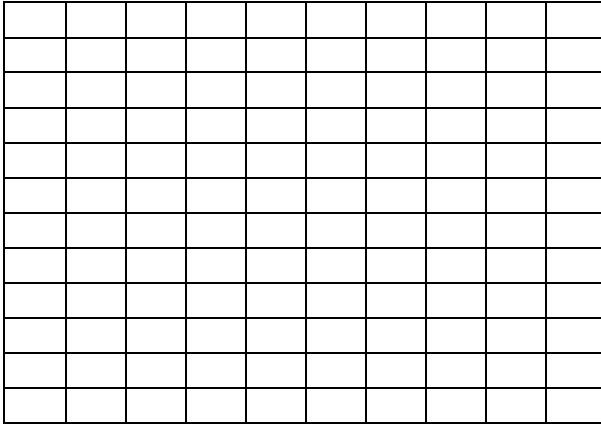


9. a) $f(x) = 2x - 5$, find $f(-2)$

b) $g(x) = -5x + 10$, find x when $g(x) = 0$

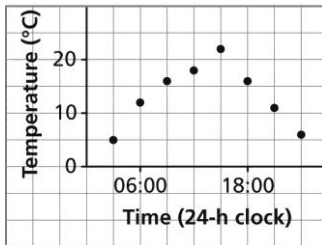
10. At the beginning of a race, Alicia took 2 s to reach a speed of 8 m/s. She ran at approximately 8 m/s for 12 s, then slowed down to a stop in 2 s. Sketch a graph of speed as a function of time. Label each section of your graph, and explain what it represents.

Solution:

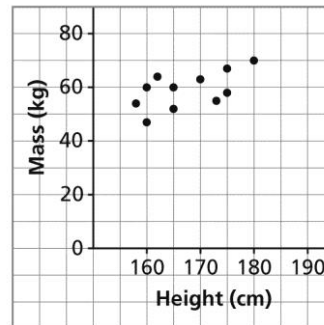


11. Which of these graphs represents a function? Justify your answer.

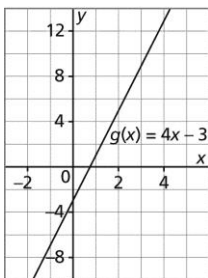
a) Outside Temperature over a 24-h Period



b) Masses of Students against Height



12. Here is a graph of the function $g(x) = 4x - 3$.



- a) Determine the range value when the domain value is 3.
- b) Determine the domain value when the range value is -7 .

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13. Which table of values represents a linear relation? If it is linear, determine the Rate of Change.

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

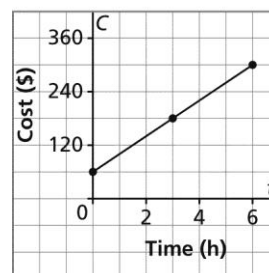
b) The relation between the amount of goods and services tax charged, T dollars, and the amount of the purchase, A dollars

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

14. This graph shows the total cost for a house call by an electrician for up to 6 h work.

a) Write an equation to represent the situation.

Cost of an Electrician's House Call



b) The electrician charges \$190 to complete a job. For how many hours did she work?

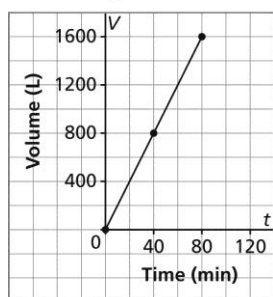
17. A hot tub contains 1600 L of water.

Graph A represents the hot tub being filled at a constant rate.

Graph B represents the hot tub being emptied at a constant rate.

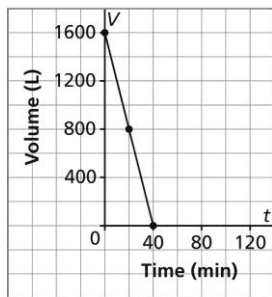
Graph A

Filling a Hot Tub



Graph B

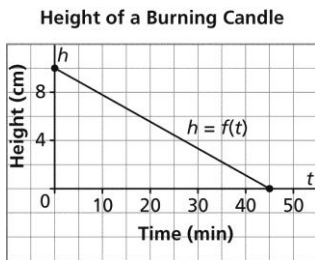
Emptying a Hot Tub



a) Identify the dependent and independent variables.

b) Determine the rate of change of each relation, then describe what it represents.

18. This graph shows how the height of a burning candle changes with time.



a) Write the coordinates of the points where the graph intersects the axes.

Determine the vertical and horizontal intercepts.

Describe what the points of intersection represent.

b) What are the domain and range of this function?

19. Sketch a graph of the linear function $f(x) = 4x - 3$.

20. Which graph has a rate of change of -5 and a vertical intercept of 100 ?
Justify your answer.

