Foundations and Pre-Calculus 10
5.1-5.5 Assignment

Name: Key
Block: _____

1. Is each of the following relations a function? Explain your answer.

a) $\{(1,2),(2,3),(3,4),(4,4)\}$

Function? Yes

Explanation: Every element in the domain is connected to only one element in the range.

b) $\{(1,1),(2,3),(2,4),(3,5)\}$

Function? No

Explanation: The number 2 is connected to 3 and 4.

c)

Person	Height (cm)
A	170
B	165
C	180
D	170

Function? Yes.

Explanation: Each person has only one height.

d)

Number	Prime Factor
4	2
6	2
6	3
8	2

Function? No.

Explanation: The number 6 has more than one prime factor

2. Write the domain and range of each relation above.

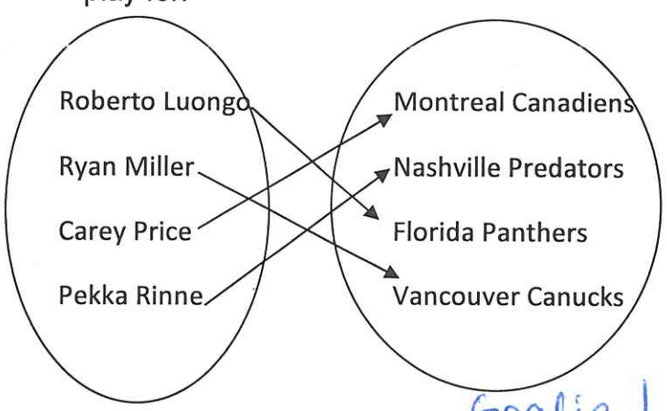
a) Domain: $\{1,2,3,4\}$ Range: $\{2,3,4\}$

b) Domain: $\{1,2,3\}$ Range: $\{1,3,4,5\}$

c) Domain: $\{A,B,C,D\}$ Range: $\{165,170,180\}$

d) Domain: $\{4,6,8\}$ Range: $\{2,3\}$

3. The following arrow diagram represents the relation of hockey goalies to the team they play for.



a) Write the relation as a set of ordered pairs.

(R.L., Florida)
(R.M., Vancouver)
(C.P., Montreal)
(P.R., Nashville)

b) Write the relation as a table.

Goalie	Team
R.L.	Florida
R.M.	Vancouver
C.P.	Montreal
P.R.	Nashville

4. The equation $C = 30n + 100$ represents the cost, C dollars, for a membership at a local gym, where n is the number of months.

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

$C(n) = 30n + 100$
The cost is \$30/month + a flat fee of \$100.

b) Determine the value of $C(12)$.
What does this number represent?

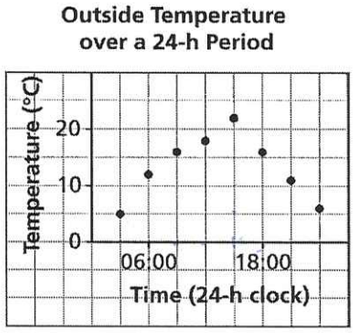
$C(12) = 30(12) + 100$
$= \$460$
The cost for 1 year.

c) Determine the value of n when $C(n) = 340$. What does this number represent?

$340 = 30n + 100$
$240 = 30n$
$n = 8$

The cost for 8 months is \$340.

5. The graph below shows the outside temperature over a 24-hour period.



a) What was the highest temperature of the day? When did it occur?

~22°C at 15:00 (3pm)

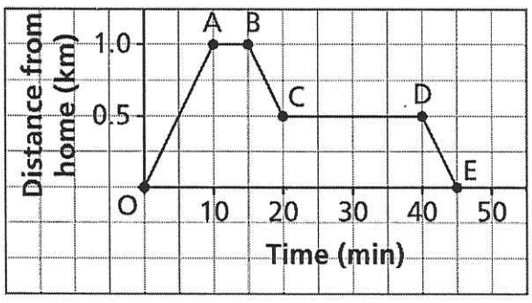
b) What was the temperature at 9 pm (21:00) ?

~11°C

c) At what 2 times during the day was the temperature the same?

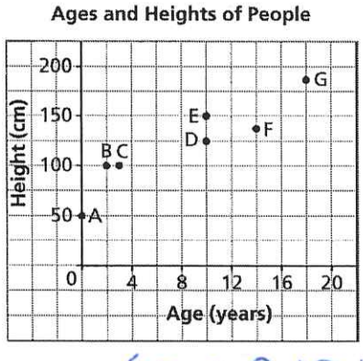
09:00 and 18:00
(9am) (6pm)

6. The graph below shows Bob's distance from home during a trip to a local store. Describe each segment of the graph.



O to A: Bob travels 1 km in 10 min to the store w/o stopping.
A to B: Bob shops for 5 mins.
B to C: Bob starts heading home (5 mins)
C to D: Bob stops for 20 min (maybe to shop or coffee)
D to E: Bob completes his trip home in 5 min.

7. For each graph below
   a) State whether each graph represents a function. Explain your reasoning.
   b) State the domain and range of the function.

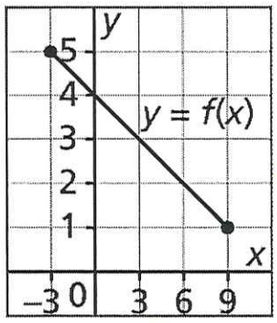


Function? No

Explanation: Age 10 has 2 heights.

Domain: $\{0, 2, 3, 10, 14, 18\}$

Range: $\{50, 100, 125, 137.5, 150, 187.5\}$



Function? Yes

Explanation: It passes the vertical line test

Domain: $-3 \le x \le 9$

Range: $1 \le y \le 5$