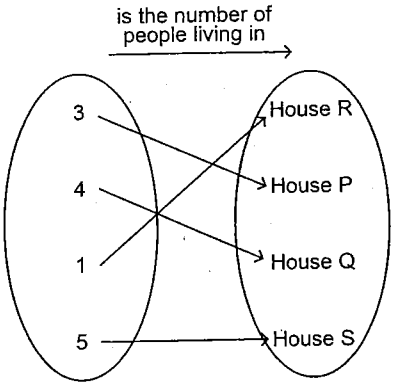
Name: KEY Class: _____ Date: _____ ID: A

ndations and Pre-Calculus 10 Chapter 5 PRACTICE.

1. Consider the relation represented by this arrow diagram. Represent the relation as a set of ordered pairs.



[(3, House P), (4, House Q), (1, House R), (5, House S)]

2. Capital cities can be associated with the province or territory they are in.

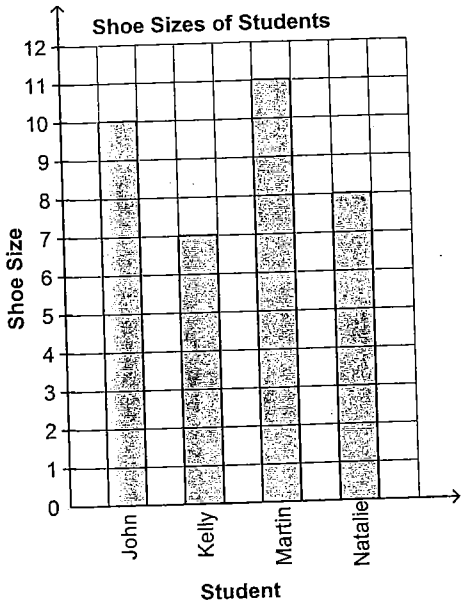
Capital City	Province/Territory
Victoria	British Columbia
Edmonton	Alberta
Regina	Saskatchewan
Winnipeg	Manitoba
Whitehorse	Yukon
Yellowknife	Northwest Territories
Iqaluit	Nunavut

Describe this relation in words.

The relation shows the association "is the capital of" from a set of capital cities to a set of provinces and territories.

Name: _____

3. Consider the relation represented by this graph. Represent the relation as a table.



Student	Shoe Size
John	10
Kelly	7
Martin	11
Natalie	8

4. Which set of ordered pairs does not represent a function?

i) $\{(2,5),(3,8),(4,11),(2,-1)\}$ ← number 2 in the first set of elements is associated with more than one element in the second set.

ii) $\{(4,6),(5,-7),(7,9),(8,-10)\}$

iii) $\{(-3,-8),(-1,-6),(-2,5),(0,7)\}$

iv) $\{(7,0),(4,-1),(-6,5),(-8,0)\}$

5. This table shows the cost, C dollars, of different numbers of tickets sold, n. Identify the range.

Number of Tickets, n	Cost, C ($)
1	12.50
2	25.00
3	37.50
4	50.00
5	62.50

Range = [12.50, 25.00, 37.50, 50.00, 62.50...]

*can continue b/c there could be more tickets sold.

6. For the function $f(x) = -2x + 8$, determine $f(-2)$.

$f(x) = -2x + 8$

$f(x) = -2(-2) + 8$

$f(x) = 4 + 8$

$f(x) = 12$

ame: _____

7. Write $y = 10x - 10$ in function notation.

$f(x) = 10x - 10$

8. Write $h(x) = -3x + 2$ as an equation in two variables.

$h = -3x + 2$

9. For the function $g(x) = 2x - 9$, determine x when $g(x) = -13$.

$g(x) = 2x - 9$

$-13 = 2x - 9$

$+9 \quad +9$

$\frac{-4}{2} = \frac{2x}{2}$

$-2 = x$

$x = -2$

10. Identify the independent variable and the dependent variable for this table of values.

Hours Worked, h	Gross Pay, P ($)
4	38.00
5	47.50
9	85.50
20	190.00
30	285.00

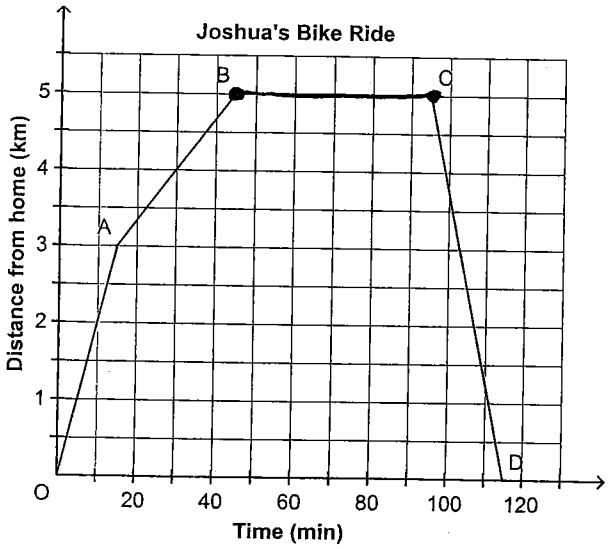
Independent Variable = Hours worked, (h)

Dependent Variable = Gross Pay, P ($)

* The gross pay depends on how many hours were worked.

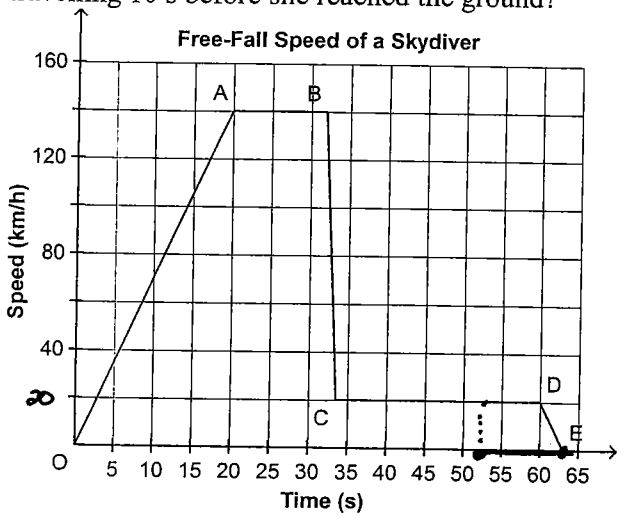
Name: _____ ID: A

11. Joshua went on a bike ride. For part of the ride, Joshua stopped to play in a park with a friend. Which segment of the graph best describes this part of his bike ride?



BC best represents the segment of the graph that best represents when Josh stopped to play in the park, bc the time continues to add up, but the distance does not change.

12. This graph shows the free-fall speed of a skydiver as a function of time. At what speed was the skydiver travelling 10 s before she reached the ground?

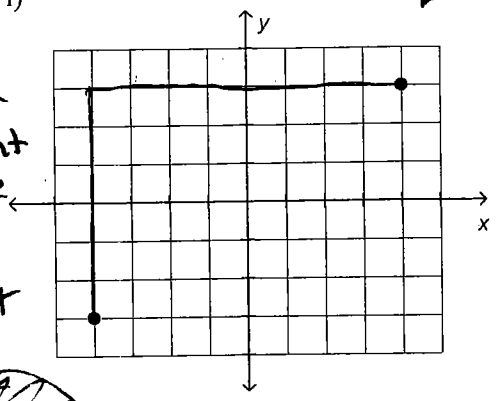


The skydiver was travelling at a speed of 20km/h, 10 sec before she reached the ground.

ame: _____ ID: A

13. Which of these graphs represents a function?

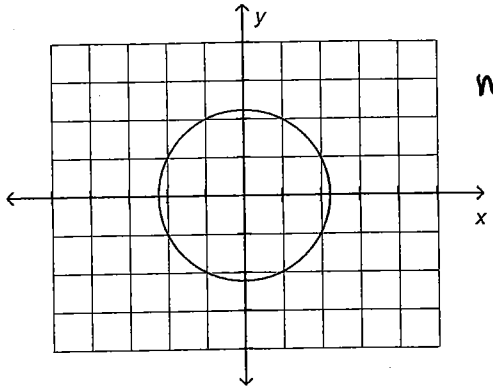
i)



not a straight line X

* Vertical Line Test

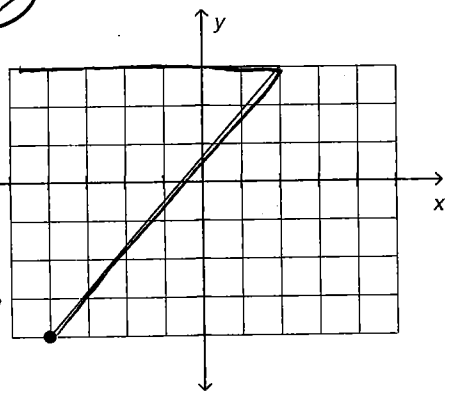
ii)



not a straight line X

Vertical Line Test

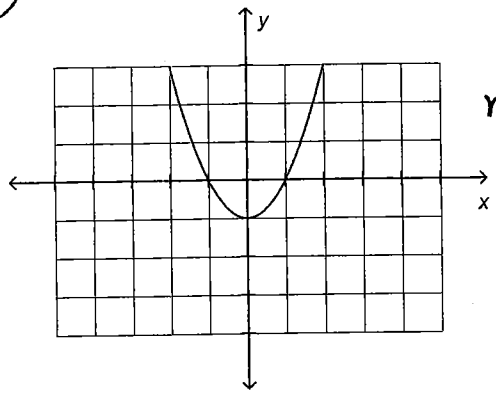
iii)



Straight line ✓

Vertical Line Test X

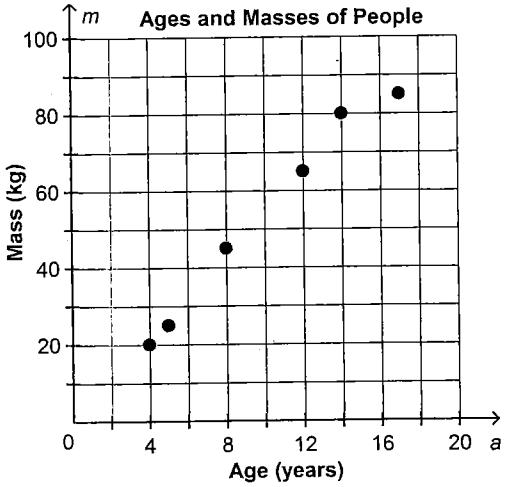
iv)



not a straight line X

but passes Vertical line test ✓

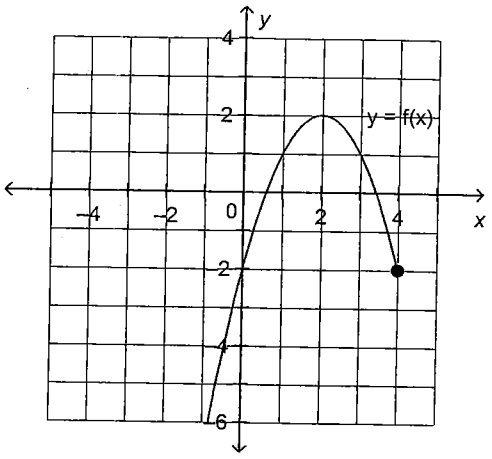
14. This graph shows the masses of people, m, as a function of age, a. Determine the range of the graph.



Range = [20, 25, 45, 65, 80, 85]

Name: _____ ID: A

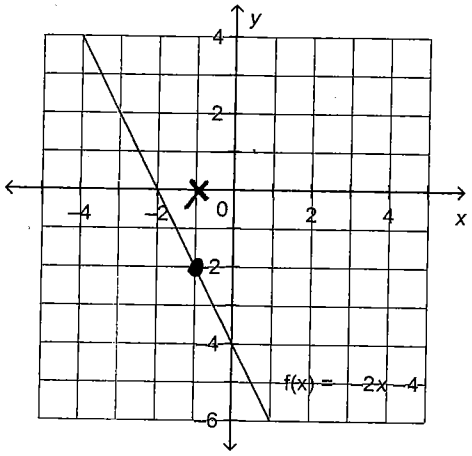
15. Determine the domain and range of the graph of this function.



Domain = $x \leq 4$

Range = $y \leq 2$

16. This is a graph of the function $f(x) = -2x - 4$. Determine the domain value when the range value is –2.



use the graph

Range Domain

$f(x) = -2x - 4$

$-2 = -2x - 4$

$+4 \quad +4$

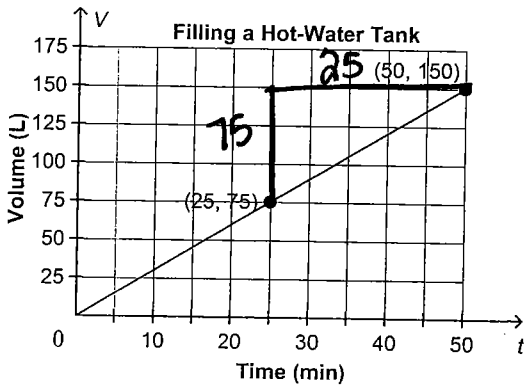
$\frac{2}{-2} = \frac{-2x}{-2}$

$-1 = x$

Algebra

$x = -1$

17. This graph represents a 150-L hot-water tank being filled at a constant rate. Determine the rate of change of the relation.



Rate of change = $\frac{150 - 75}{50 - 25}$

$= \frac{75}{25}$

$= 3 \text{ L/min}$

The hot water tank will fill 3L every one min.

18. Which set of ordered pairs represents a linear relation?

i) $\{(4, 9), (5, 7), (6, 5), (7, 3), (8, 1)\}$ Both domain & range have a constant change. Domain +1, Range -2

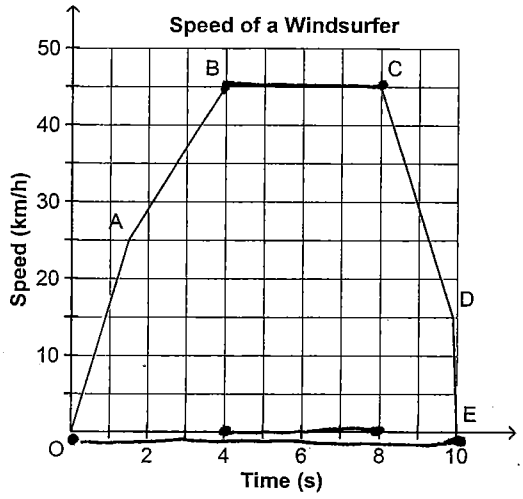
X ii) $\{(5, 8), (6, 10), (7, 12), (8, 13), (9, 14)\}$

X iii) $\{(-1, 1), (0, 0), (1, 1), (2, 4), (3, 9)\}$

X iv) $\{(4, 6), (12, 5), (2, 4), (13, 3), (4, 2)\}$

Either domain or range does not have a constant rate of change.

19. The graph shows the speed of a windsurfer as a function of time.



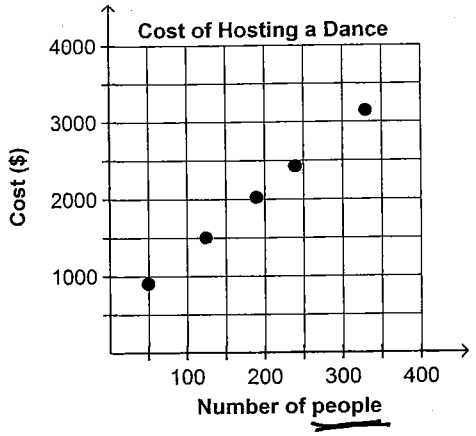
a) For how long did the windsurfer travel at a speed of 45 km/h?

The windsurfer travelled at the speed of 45km/h for 4s.

b) How long did the windsurfer's ride last?

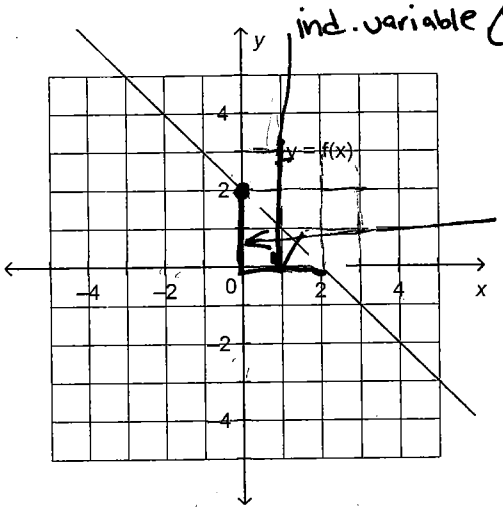
The windsurfer's ride lasted for 10 s.

20. Explain why the points on this graph are not joined.



The points on the graph are not joined bc the data are only valid for whole numbers of people.

21. Determine the rate of change and the vertical intercept of this graph.



ind. variable (2)

Vertical Intercept = 2

Rate of change = $\frac{\text{dep. variable}}{\text{indep. variable}}$.

dep. variable (-2)

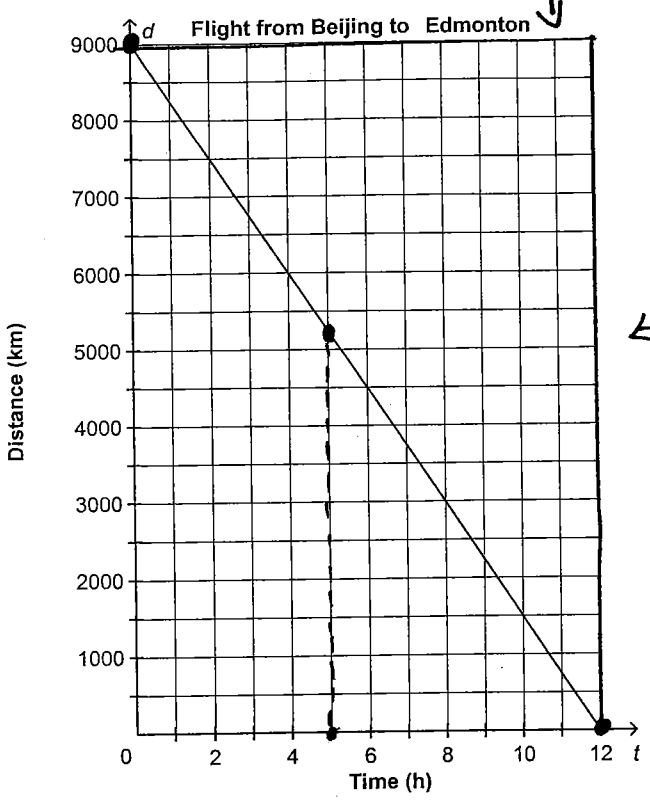
$= \frac{-2}{2}$

Rate of change = -1

Vertical Intercept = 2

22. This graph shows the distance, d kilometres, from Beijing, China, to Edmonton, Alberta, as a function of flying time, t hours.

Independent Variable = 12-0
= 12 hr



← Dependent Variable = 0-9000
= -9000 km

a) Determine the vertical and horizontal intercepts. Describe what the points of intersection represent.

Vertical Intercept = 9000 → at the start of the trip, the distance from Beijing to Edmonton is 9000 km.
Horizontal Intercept = 12
↳ It takes approx. 12 hrs to fly from Beijing to Edmonton.

/3

b) Determine the rate of change. What does it represent?

Rate of change = $\frac{\text{dep. var}}{\text{ind. var}} = \frac{-9000}{12} = -750$ km/h (*neg speed not possible)

/2

The rate of change is negative so the distance is decreasing with time. Every hour, the distance to Edmonton decreases by approx. 750 km.

c) Write the domain and range?

Domain = $0 \leq x \leq 12$
Range = $0 \leq y \leq 9000$

or

$0 \leq t \leq 12$
$0 \leq d \leq 9000$

/2

d) What is the distance to Edmonton when the plane has been flying for 5 h?

at 5 hours, the distance to Edmonton will be approx. 5250 km.

/2