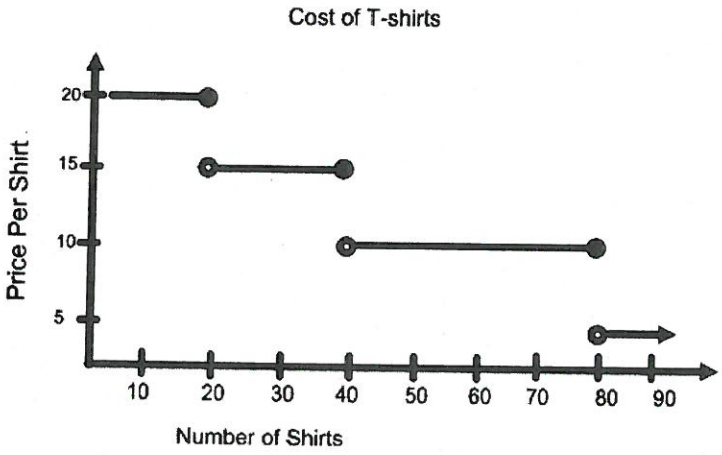
Answer key

1. **Using** the graph below:



a) What is the cost per t-shirt of ordering 60 shirts? $10/shirt

b) What is the cost per t-shirt of ordering 20 shirts? $20/shirt

c) If you are paying $5 per shirt, how many were ordered? more than 80 shirts.

2. **Supernet announces its Internet rates in the following advertisement:**

Unlimited access to the Internet First month: $10 Subsequent months: $30 per month

Circle the table of values represents this situation.

A)

Time (months)	[0, 1]	[2, 3]	[4, 5]
Total ($)	10	70	120

B)

Time (months)	]0, 1]	]1, 2]	]3, 4]
Total ($)	10	40	100

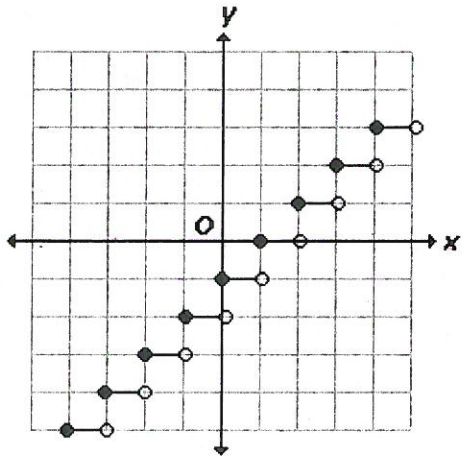
C)

Time (months)	0.5	3.5	4.5
Total ($)	10	100	100

D)

Time (months)	0.5	2.5	5
Total ($)	5	85	160

3. The step function graph below is in increments of 1 on the x and y axis.



Answer the following questions:

a) What is the length of the step? 1 increment

b) What is the value at f(0)? -1

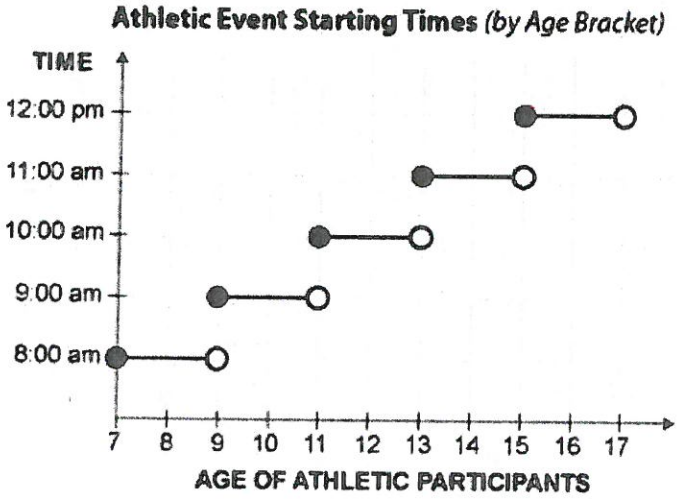
c) What is the value at f(1)? 0

d) What is the value at f(2)? 1

e) What is the value at f(-4)? -5

f) What is the value at f(-1)? -2

4. **Answer** the following questions using the step graph.



a. How many hours separate the start times of an 8 year old and a 15 year old? 4 hours

b. What is the maximum age an athlete is allowed to participate in an event? Explain your answer.

7 years old. There is no start time for any age under 7 years old.

c. Do 10 year old and 11 year olds have the same start times? Explain your answer.

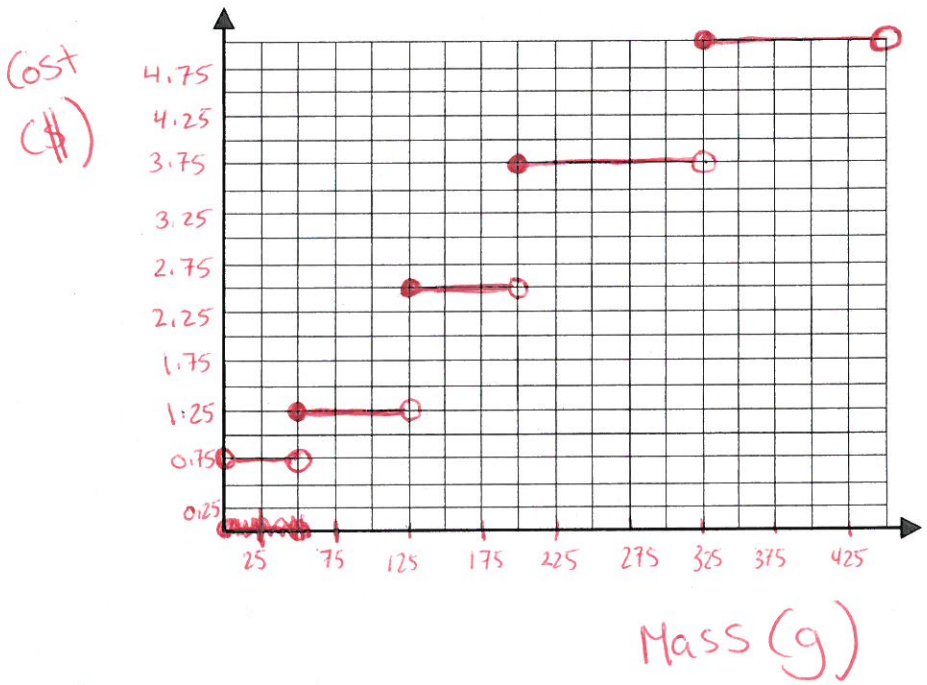
No. The 10 year olds start at 9am, however the 11 year old are not included in the 9 am (open dot) but rather at 10am (closed dot)

5. Students in a French course are pen pals with students in Europe. They wish to know the cost of mailing a letter overseas.

Using the following table of values, **construct** a graph to represent this situation.

Mass (grams)	Mailing Cost ($)
$0 < \text{mass} < 50$	0.75
$50 \leq \text{mass} < 125$	1.25
$125 \leq \text{mass} < 200$	2.50
$200 \leq \text{mass} < 325$	3.75
$325 \leq \text{mass} < 450$	5.00

Cost of Mailing a Letter Overseas



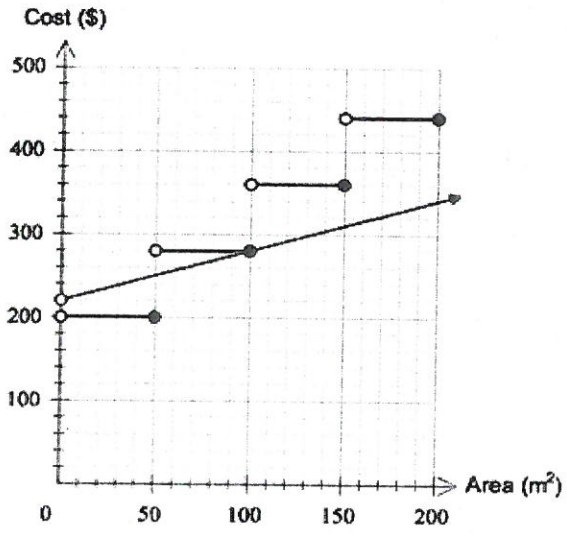
Step Functions
Rachelle George-Bernard

Question 1

Two house painters charge customers based on the area of the walls being painted, but each follows a different pricing model. The graph below compares the two painters' pricing models, with ***Mathias*** represented in ***red*** and ***Julia*** represented in ***blue***.

(step function) (straight line)

Based on the information in the graph, which painter offers a better deal?



Question 2

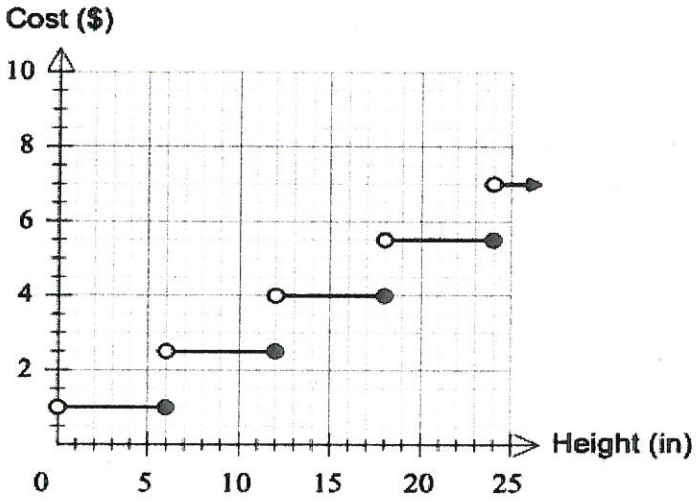
Sketch the function represented by the table of values below.

x	y
]0,3]	14
]3,6]	12
]6,9]	10
]9,12]	8
]12,15]	6

Question 3

At *Green's Nursery*, the cost of purchasing a lucky bamboo plant is dependent on the height of the plant. The graph below shows the cost calculation, where x represents the height of a stalk in inches and y represents the total cost in dollars.

Explain the pricing plan used at *Green's Nursery*.

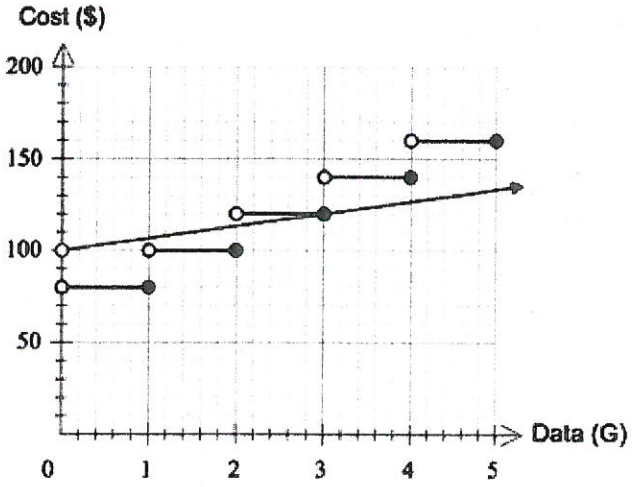


Question 4

The pricing guides for two different cellphone companies are represented in the graph below, where cost is calculated based on data usage. ***Rover's*** pricing guide is represented in ***red*** and ***Chime's*** is represented in ***blue***.

(straight line) (steps)

Based on the information in the graph, which company offers a better deal?

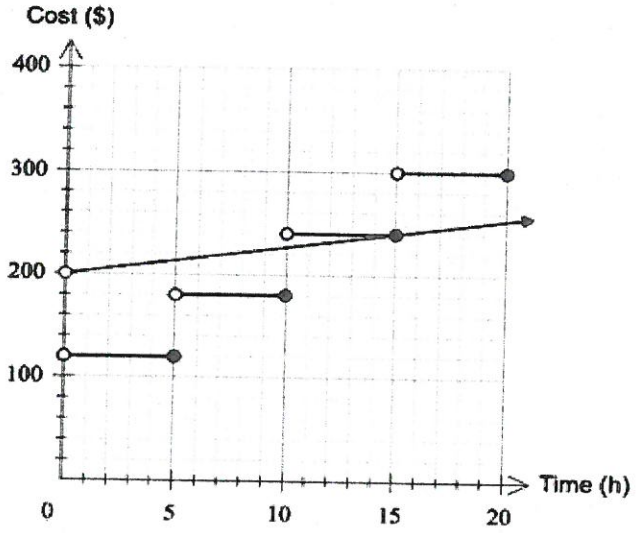


Question 5

The pricing guides for two gardeners are represented in the graph below, with ***Theo*** in ***red*** and ***Fatima*** in ***blue***. Both gardeners charge based on the amount of time spent working at a client's house.

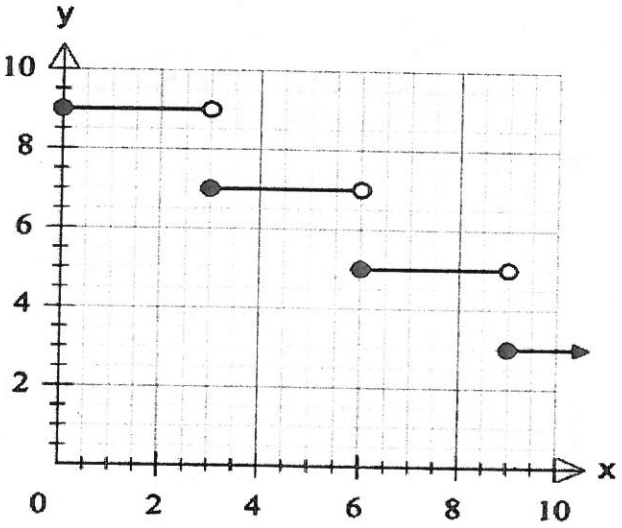
(straight line) (step)

Based on the information in the graph, which gardener offers a better deal?



Question 6

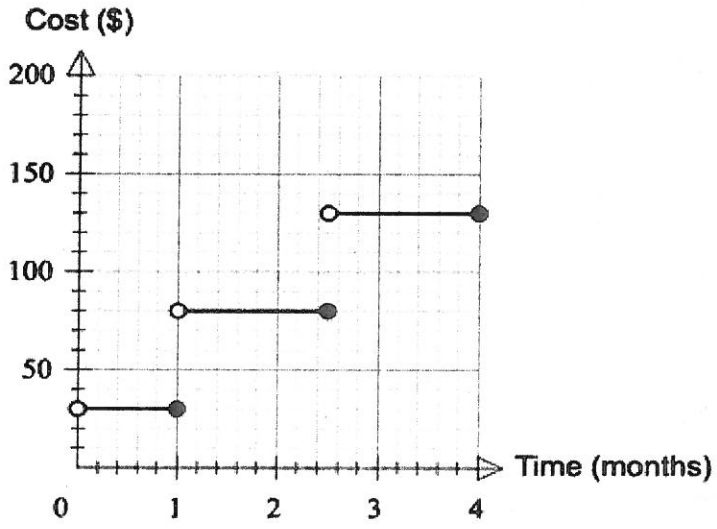
Determine the **x-values** of the function below when $y = 7$.



Question 7

Eli's Gym offers a discount for new members so that if they join for a month or less, they pay only \$30. Each month or part of a month after that is charged at \$50.

This situation is represented on the graph below but with one error. Identify the error and state the correction that needs to be made in order for the graph to accurately represent the situation.



Question 8

Evaluate $f(3)$ in the step function below.