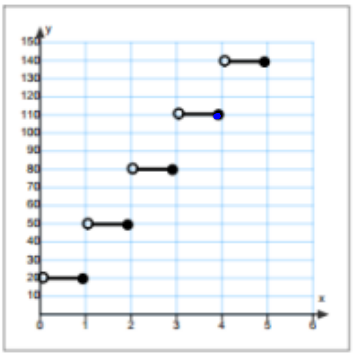
Step Function

A function which increases or decreases by a **fixed amount** according to certain increments.

There is **NO RULE** for this function

The graph looks like a series of 'steps'



Example #1

For every $50 that you spend at a grocery store, you get one item for free.

Increments of 50 Increases by 1 item.

Amount spent $	Number of free gifts
[0,50[	0
[50,100[	1
[100,150[	2
[150,200[	3
[200,250[	4

[0,50[includes 0 but does not include 50

]0,50] does not include 0 but does include 50

Example #2

A parking garage is free for the first 30 minutes. Then you pay $3 per 30 minutes after that.

Increment = 30 min Increase = $3

x: #mins
y: Cost

Represent this function on a graph.

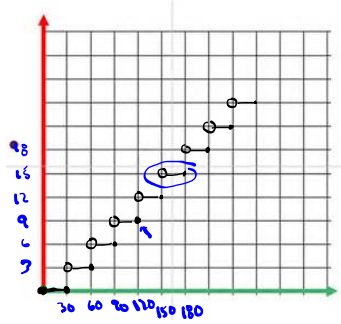
Each of the STEPS on the graph will look like this:

or like this:

hollow circle = not included

full circle = included

Time (min)	Cost $
[0, 30]	0
]30, 60]	3
]60, 90]	6
]90, 120]	9
]120, 150]	12



How much will it cost for 2 hours? 2(60) = 120 mn → $9

If you paid $15 how long were you parked in the garage?

]150, 180]

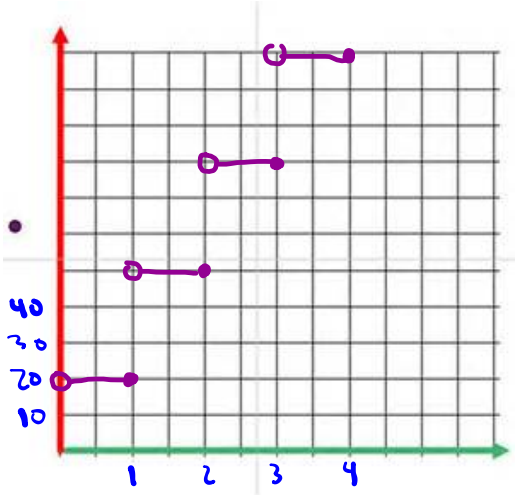
Example #3

An electrician charges $20 to come to your home for the first hour, then $30 for every subsequent hour or part of an hour.

Increases by $30 (but starts at $20) increment of 1 hour

Time (hours)	Total Cost
]0,1]	20
]1,2]	50
]2,3]	80
]3,4]	110

+30
+30



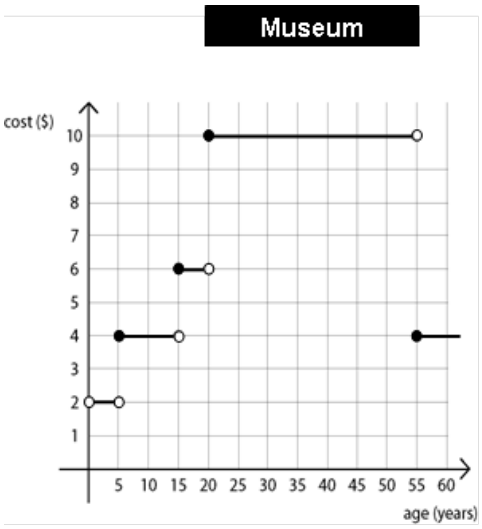
1. The graph shows the cost of a day ticket to the museum according to a person's age.

Melissa is 15-years-old and is going to the museum with her 4-year-old sister, her 35-year-old mother and her 55-year-old grandmother.

What is the total cost for the four of them for one day at the museum?

M: $6
S: $2
Mom: $10
GM: $4

6+2+10+4
= $22



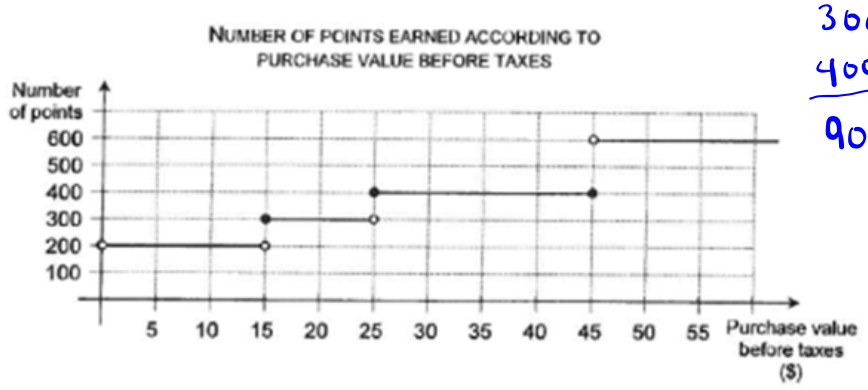
2. Customers earn points for every purchase they make at a music store. When they have accumulated enough points, they get a gift card.

The function represented below shows how to determine the number of points customers earn according to the value of their purchase, before taxes.

In May, Rose made three purchases at the music store: one on May 8, one on May 15 and one on May 25. Before taxes, the values of her purchases were $9.50, $22 and $45 respectively.

How many points did Rose earn at the music store in May?

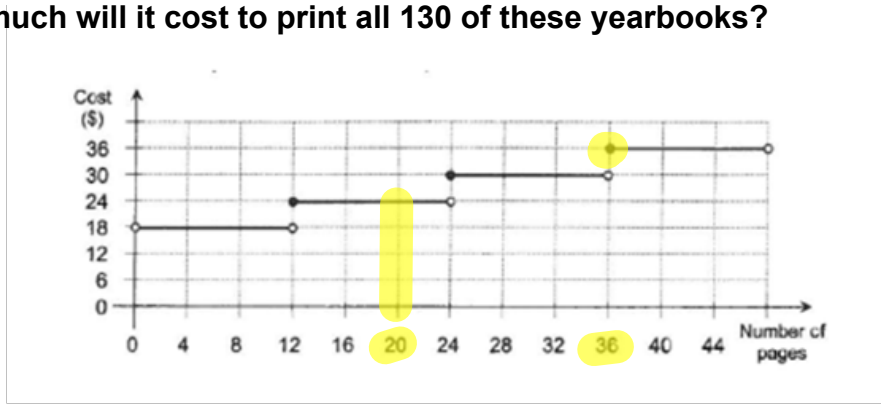
200
300
400
900 pts



3. The function represented below can be used to determine the cost of printing a yearbook according to the number of pages it contains.

The graduates of a secondary school want to print 30 yearbooks containing 20 pages each for teachers and 100 yearbooks containing 36 pages each for students.

How much will it cost to print all 130 of these yearbooks?



$30(24) + 100(36) = \$4320$

4. The following step graph illustrates the cost of tickets to the Museum of Fine Arts.

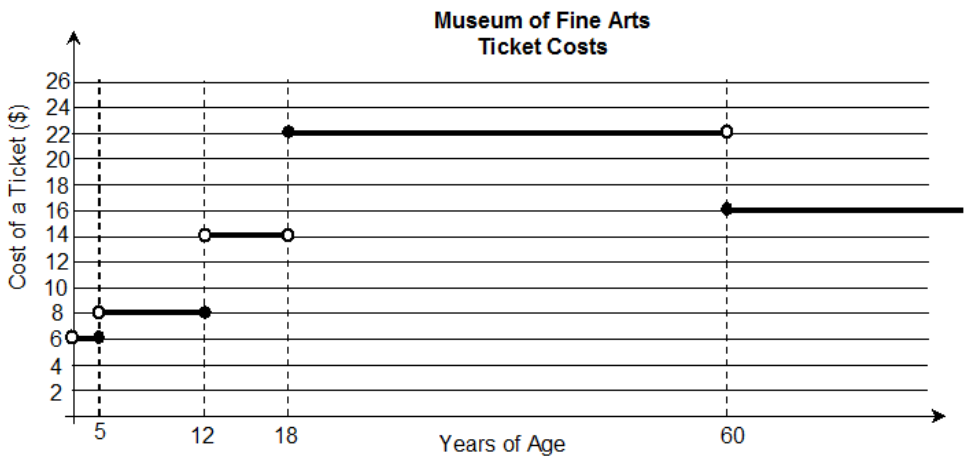
According to the step graph, which of the following statements is FALSE?

A) The cost of a ticket for a 7-year-old child is $8. T

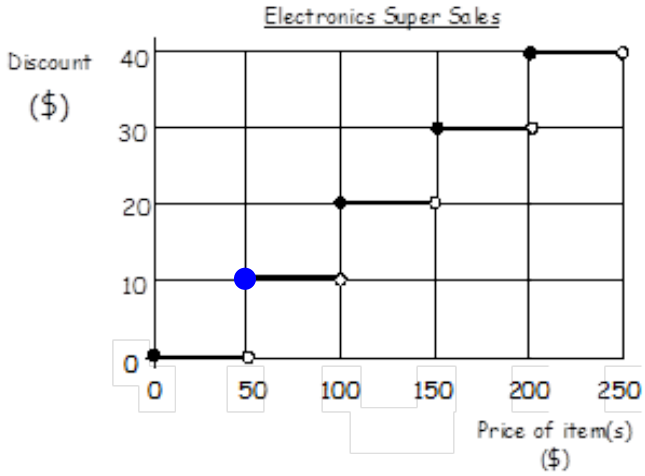
B) The cost of a ticket for a 12-year-old child is $14. F

C) The cost of a ticket for a 60-year-old adult is $16. T

D) The cost of a ticket for an 18-year-old adult is $22. T



5. The graph below illustrates the discount that is offered at an electronics store.
Which of the following statements is true?



a) If you buy an item priced at $50, you get no discount. F

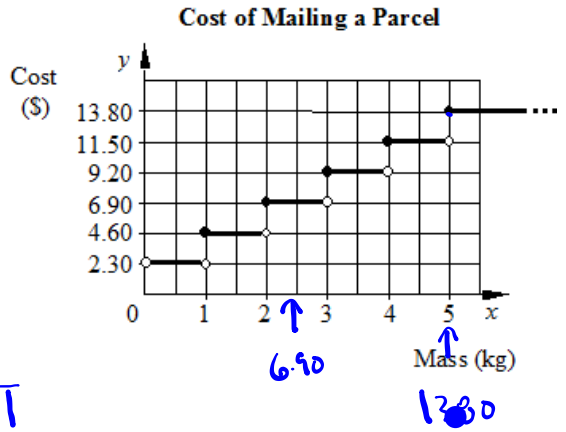
b) The discount is the same for an item priced in the interval [100, 150[. T

c) There is no discount for any items under $100. F

d) You receive a $30 discount for any items less than $200. F

6. The cost of mailing a parcel depends on its mass.

The cost of mailing a parcel in relation to its mass is detailed below.



1. The cost of mailing a one-kilogram parcel is $2.30. F
2. All parcels weighing over 5 kg are maile at a fixed cost. T
3. There is no cost for mailing a parcel tha weighs 0.25 kg. F
4. The cost of sending a 5-kg parcel is twi expensive as sending a 2.5-kg parcel. T
5. It costs $6.90 to mail a parcel weighing less than 3 kg. F

Which of the statements above are true?

A) 1, 2, and 4 B) 2, 3, and 5 (C) 2 and 4 D) 4 and 5