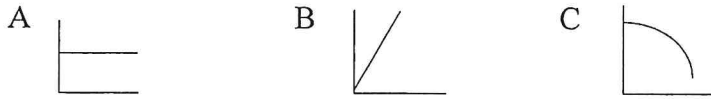
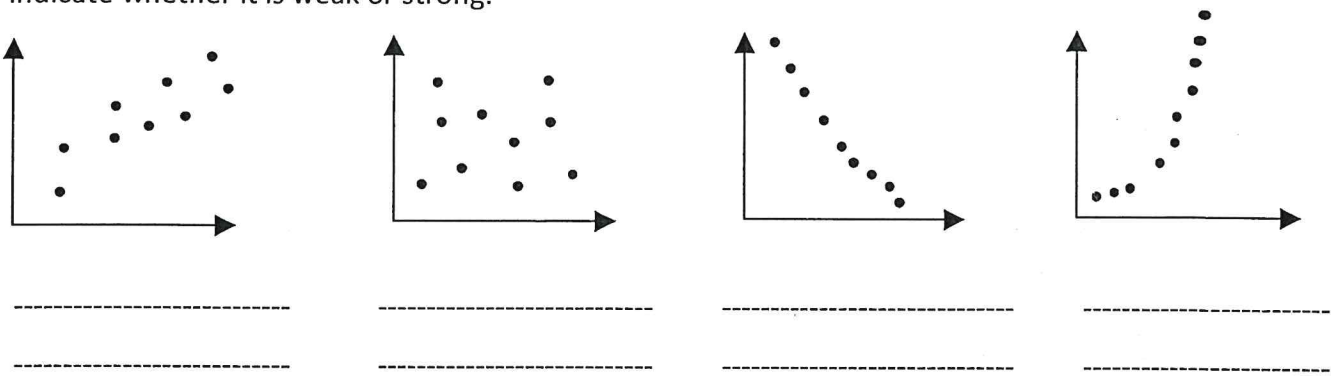


1. Which of the following diagrams does **not** represent a Linear Relationship?



2. Label each diagram as having a positive, negative or no correlation. If there is a correlation, indicate whether it is weak or strong.



3. Use first differences to determine whether the following relations are linear or non-linear.

a)

x	y	First Differences
-2	2.5	
-1	3	
0	3.5	
1	4	
2	4.5	
3	5	

Linear  Non-Linear

b)

x	y	First Differences
-3	4	
-2	5	
-1	4	
0	1	
1	-4	
2	-11	

Linear  Non-Linear

4. Given the following pairs of variables, state which one has a positive correlation, negative correlation, or no correlation.

	Positive or Negative or No Correlation?
The amount of time on the treadmill and the number of calories burned.	
Height and the amount of money you make.	
Age of a tadpole and the length of its tail.	

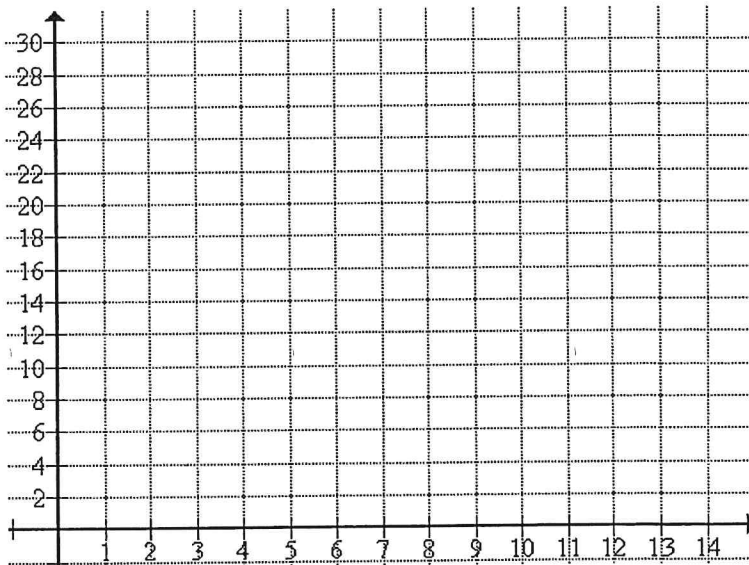
5. For each pair of variables, state which is independent and which is dependent.

	Independent	Dependent
The distance a jogger runs and the length of time she runs.		
The amount of money made and the amount of time worked.		

6. Lucy is trying to visualize if there is a relationship between the length of time a candle has been burning and its remaining height.

a) Lucy measures the heights of different candles after they have been burning for some time. Her data is summarized in the table below. Create a fully labelled scatter plot of the data.

Elapsed time (min)	Candle Height (cm)
12	16
2	26
0	28
8	22
10	18
5	25
6	21
3	8



b) Describe the relationship, if any.

As the elapsed time increases, \_\_\_\_\_.

c) Are there any outliers? If so, which point(s)? \_\_\_\_\_

\*Cross it out in the table and on the graph so that you don't use it for the next step.

d) Draw a line of best fit.

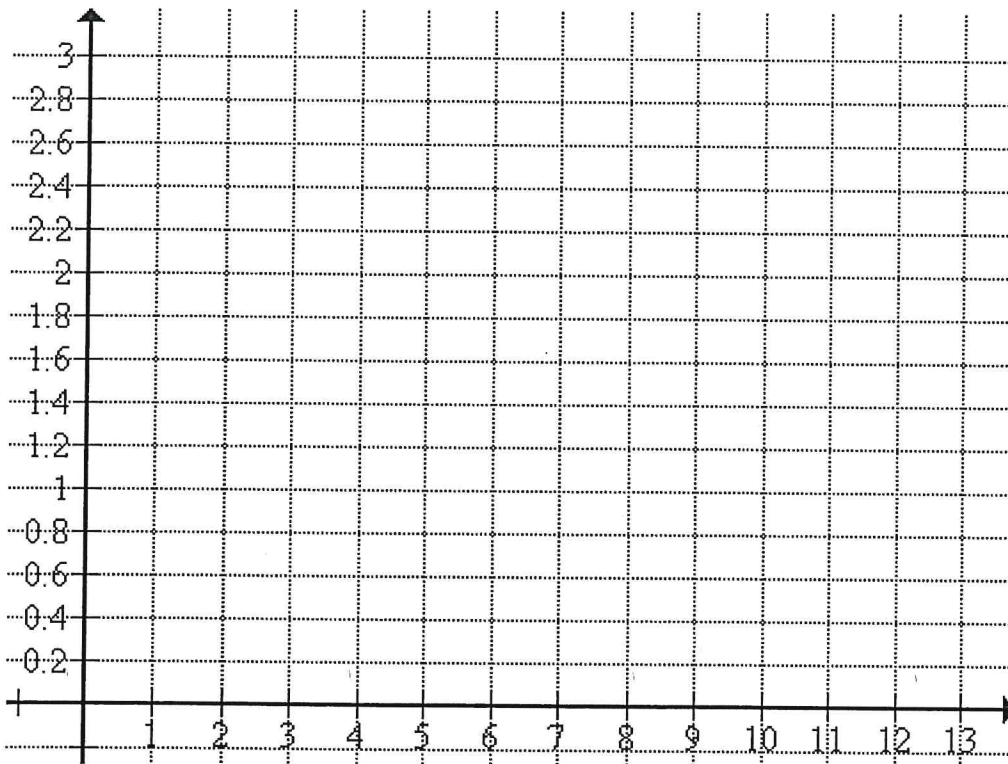
e) Use your line of best fit to estimate how tall a candle would be after burning for 9 minutes. (Remember to show your lines on the graph!)

f) Use your line of best fit to estimate how long it would take a candle to burn down to a height of 24 cm. (Remember to show your lines on the graph!)

7. A fast-growing evergreen tree has been planted in your backyard. Because it affects the view from your bedroom window, you are interested in finding the pattern between the length of time the tree has grown, and the height of the tree. Your experiment lasted 12 months. You measured the height of the tree on the 1<sup>st</sup> of each month.

Time (months)	Height (m)
0	0.3
1	0.4
2	0.8
3	1.1
4	1.4
5	1.7
6	2.1
7	2.3
8	2.5
9	2.7
10	2.8
11	2.9
12	2.9

a) Create a fully labelled scatter plot of your results.



b) Describe the relationship, if any.

As time increases, \_\_\_\_\_.

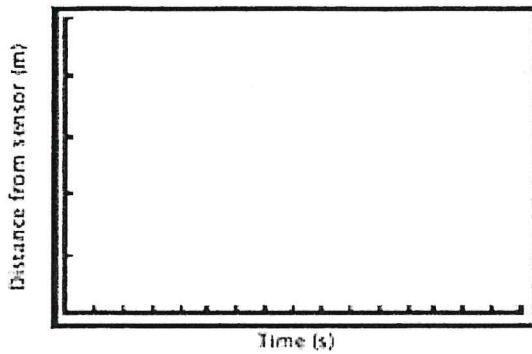
c) A straight line does not describe this relationship well. Explain why using your knowledge of how a tree grows?

d) Draw a **curve of best fit**.

e) Use your curve of best fit to estimate the height of the tree after 4.5 months. Remember to show your lines on the graph!

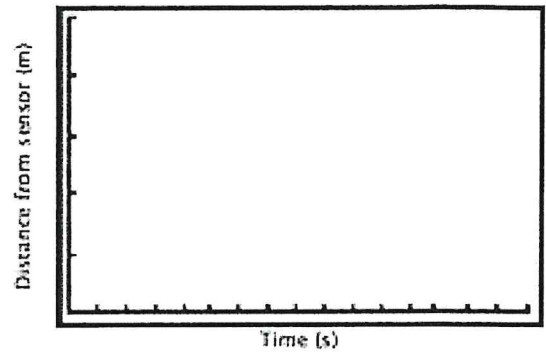
8. For each of the following scenarios, draw the resulting distance-time graph on the grids provided.

a)



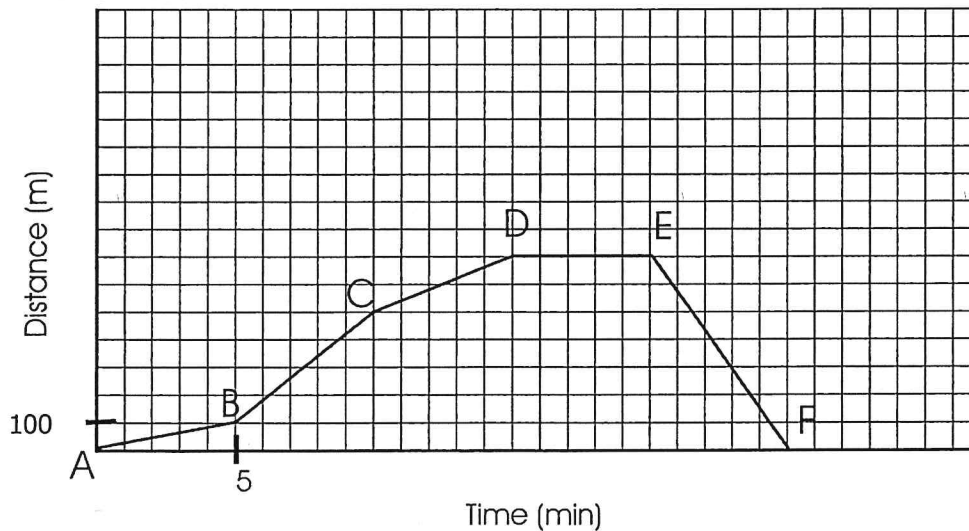
Bob starts 4 m away from the CBR and stands still for 4 seconds, then walks towards the CBR at a constant rate for 4 seconds, then stand still again for the remaining time.

b)



Bob starts at the CBR and quickly walks away for 2 seconds, stops for 1 second and then walks towards the CBR at a slow steady rate.

9. Chris runs each day as part of his daily exercise. The graph shows his distance from home as he runs his route. Fill in the table below.



Line Segment	Direction	Distance	Time	Speed
AB				
BC				
CD				
DE				
EF				