MPM1D1

Unit #1 – Relations

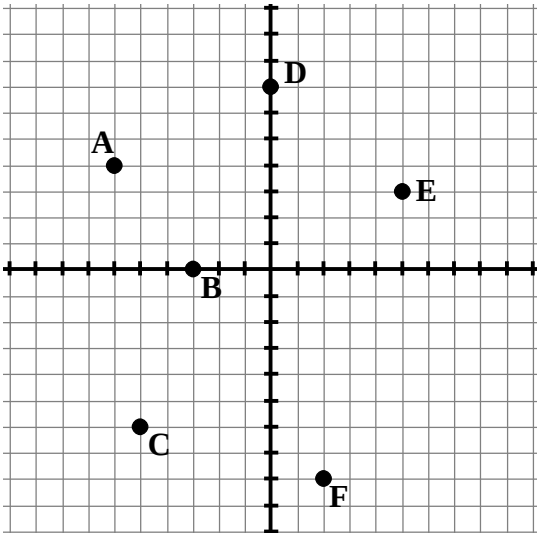
Progress Check

The purpose of the progress check is to diagnose areas that you need more practice with before the test.

1. Answer the questions on this handout. Treat it like a test. DO NOT look at the answers until you have finished all of the questions.
2. Use the answers provided to check and see how you did.
3. Use the additional review questions provided to practice more questions like the ones you had trouble with in this package.
4. Although this progress check contains a wide selection of questions from this unit, it does not cover ALL of the possible questions from the unit.

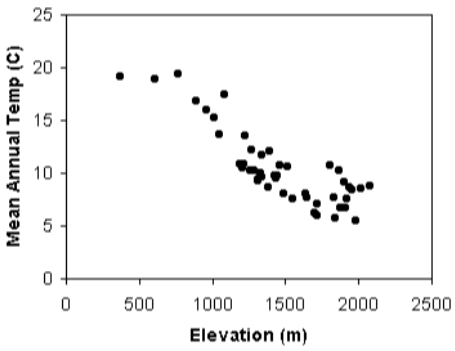
1. State the coordinates of each of the following points.

Point	Coordinates
A	
B	
C	
D	
E	
F	

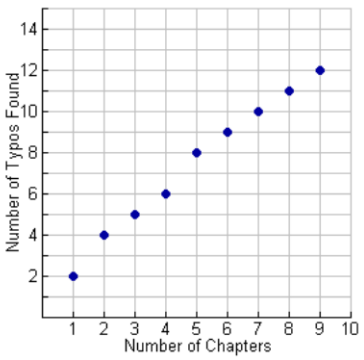


2. State the trend for each of the following graphs.

a)



b)



3. Evaluate each of the following. Show all of your work.

a) $(-3) - (-4) + (-6) + 7 - (-9)$

b) $7 - 2 + 6 - 4 - 10$

c) $(-5)(-4)(-3)$

d) $(-2)(6)(5)$

e) $\dfrac{(4)(-6)}{-8}$

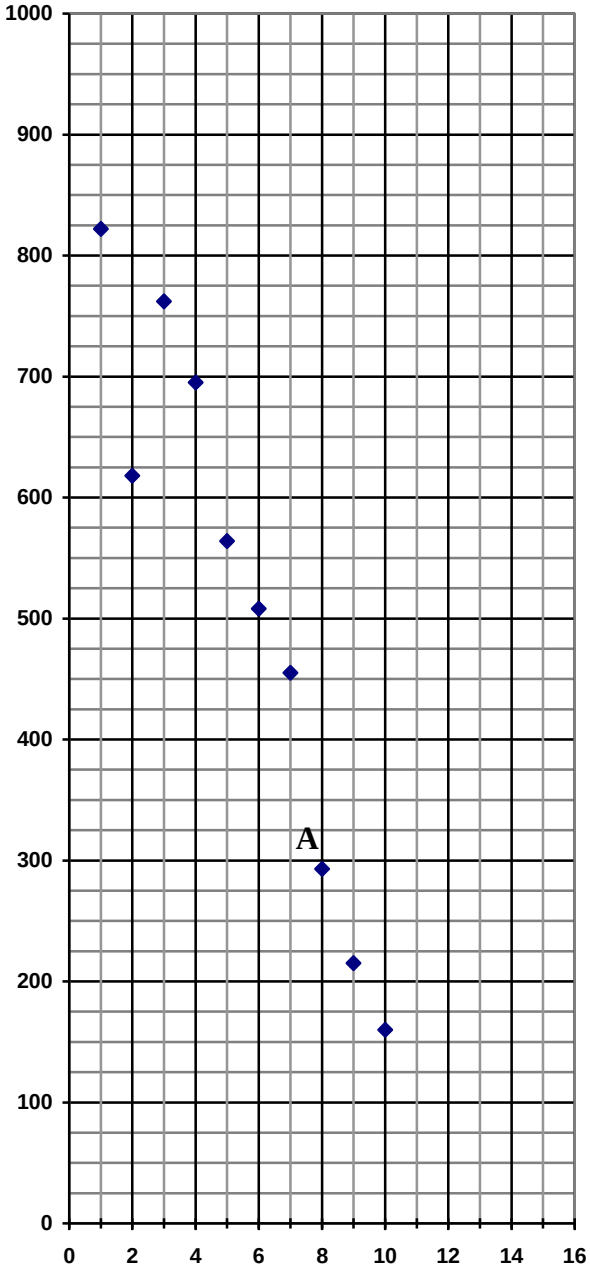
f) $\dfrac{(8)(9)}{(-6)(1)}$

g) $4[(-11)(-2) + (-6)(+3) - (+4)(+4)]$

h) $\dfrac{17 \times 4 - 2^3}{3^2 + 1}$

4. The following graph shows the number of weeks since a movie was released on Netflix, and the number of times it has been watched that week.

Week	Number of Views
1	822
2	618
3	762
4	695
5	564
6	508
7	455
8	293
9	215
10	160



a) Label the axes and create a title for the graph.

b) State the coordinates of point A. What does this point mean in the context of the graph?

c) Circle an outlier on the graph. State one possible explanation for this point.

d) State the trend shown by this graph.

5. The table below shows the relationship between the recommended age level for a children's book, and the average length of the words in the book.

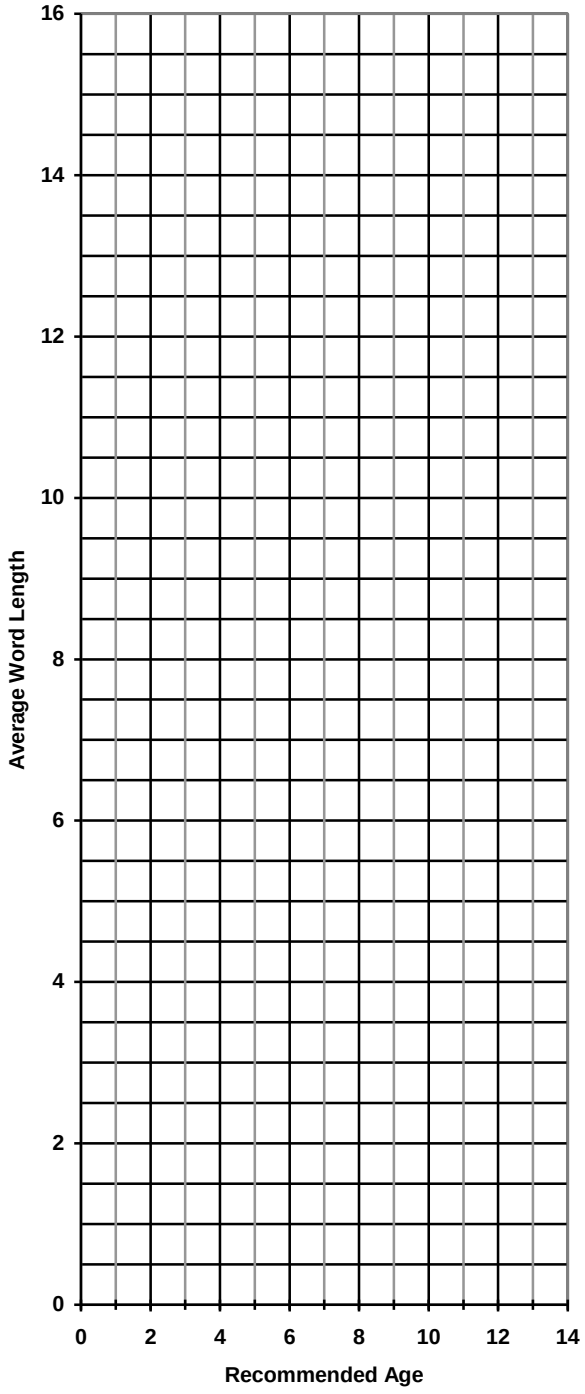
Recommended Age	4	6	5	6	7	9	8	5
Average Word Length	3.5	5.5	4.6	5.0	5.2	6.5	6.1	4.9

a) Create a scatter plot for the table of values. Include an appropriate title for your graph.

b) State the trend shown by the graph.

c) Add a line or curve of best fit to your graph. Explain your reasoning.

d) Using the graph, predict the *Average Word Length* of a book recommended for 12 year olds. Is this an example of interpolation or extrapolation? Explain your reasoning.

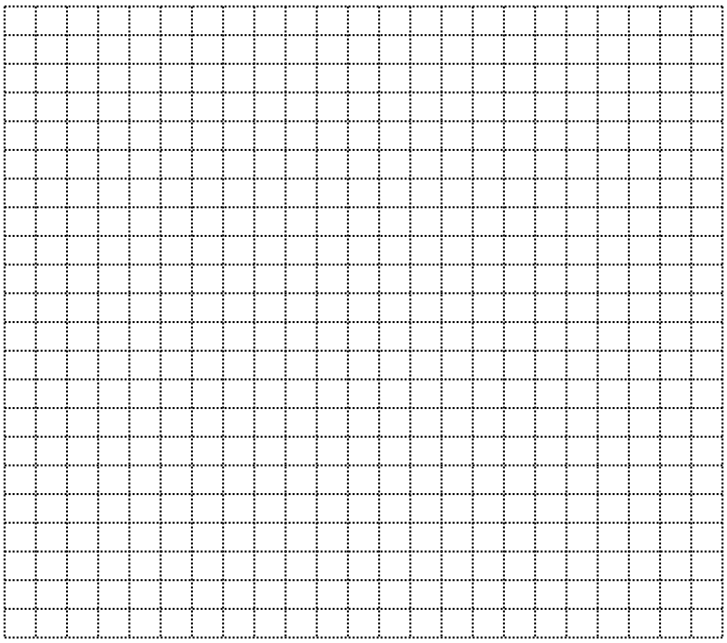


6. The following table shows the distance traveled by a car during the first 14 seconds of acceleration.

Time (s)	0	2	4	6	8	10	12
Distance (m)	0	6	22	50	90	140	190

a) State the independent variable and the dependent variable.

b) Create a scatter plot of the data. Include an appropriate scale, axis labels, and a title.



c) Add a line or curve of best fit to your graph. Explain your reasoning.

d) According to the graph, how far would the car have traveled after 5 seconds? Is this an example of Interpolation or Extrapolation? Explain your reasoning.

Answers:

Full solutions can be viewed on the course website under the Unit #1 Folder.

1] A = (-6, 4), B = (-3, 0), C = (-5, -6), D = (0, 7), E = (5, 3), F = (2, -8)
2a] As the elevation increases, the mean annual temperature increases.
2b] As the number of chapters in a book increases, the number of typos increases.
3a] 11 3b] -3 3c] -60 3d] -60 3e] 3 3f] -12 3g] -48 3h] 6
4b] (8, 293) This means that during week 8 the movie was watched 293 times.
4c] (2, 618) Perhaps a different (and more exciting) movie came out that week so people watched it instead.
4d] As the number of weeks increases, the number of views decreases.
5b] As the recommended age increases, the average word length increases.
5c] (Line of Best Fit) The points appear to follow a line and line up with my pencil.
5d] 8.5 letters, Extrapolation
6a] Independent – Time, Dependent – Distance
6c] (Curve of Best Fit) The points appear to make a line and do not follow my pencil very well.
6d] 34 m (answers will vary), Interpolation

Solutions

MPM1D1

Unit #1 – Relations

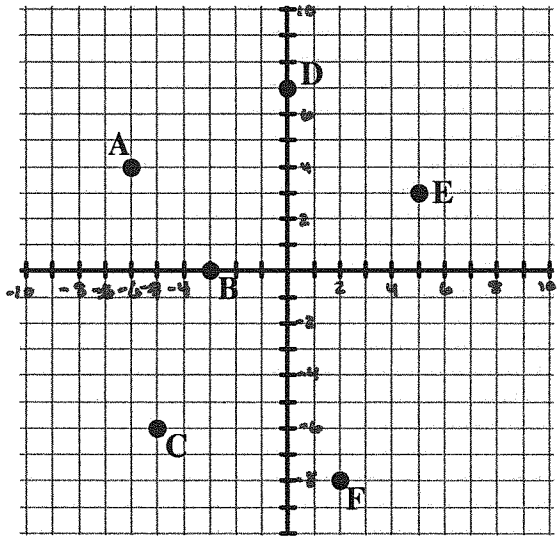
Progress Check

The purpose of the progress check is to diagnose areas that you need more practice with before the test.

1. Answer the questions on this handout. Treat it like a test. DO NOT look at the answers until you have finished all of the questions.
2. Use the answers provided to check and see how you did.
3. Use the additional review questions provided to practice more questions like the ones you had trouble with in this package.
4. Although this progress check contains a wide selection of questions from this unit, it does not cover ALL of the possible questions from the unit.

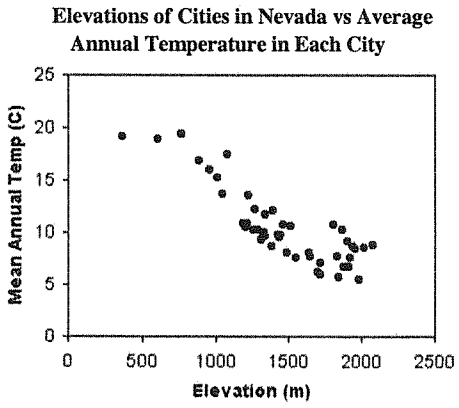
1. State the coordinates of each of the following points.

Point	Coordinates
A	(-6,4)
B	(-3,0)
C	(-5,-6)
D	(0,7)
E	(5,3)
F	(2,-8)



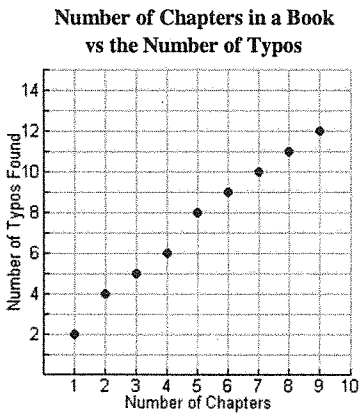
2. State the trend for each of the following graphs.

a)



As the elevation increases, the mean annual temp. decreases.

b)



As the number of chapters increases, the number of typos increases.

3. Evaluate each of the following. Show all of your work.

a) $(-3) - (-4) + (-6) + 7 - (-9)$

$= -3+4-6+7+9$

$= +20-9$

$= +11$

b) $7 - 2 + 6 - 4 - 10$

$= +13-16$

$= -3$

c) $(-5)(-4)(-3)$

$= (20)(-3)$

$= -60$

d) $(-2)(6)(5)$

$= (-12)(5)$

$= -60$

e) $\dfrac{(4)(-6)}{-8}$

$= \dfrac{-24}{-8}$

$= +3$

f) $\dfrac{(8)(9)}{(-6)(1)}$

$= \dfrac{72}{-6}$

$= -12$

g) $4[(-11)(-2) + (-6)(+3) - (+4)(+4)]$

$= 4[22 + (-18) - 16]$

$= 4(22-18-16)$

$= 4(22-34)$

$= 4(-12)$

$= -48$

h) $\dfrac{17\times4-2^3}{3^2+1}$

$= \dfrac{17\times4-2(2)(2)}{3(3)+1}$

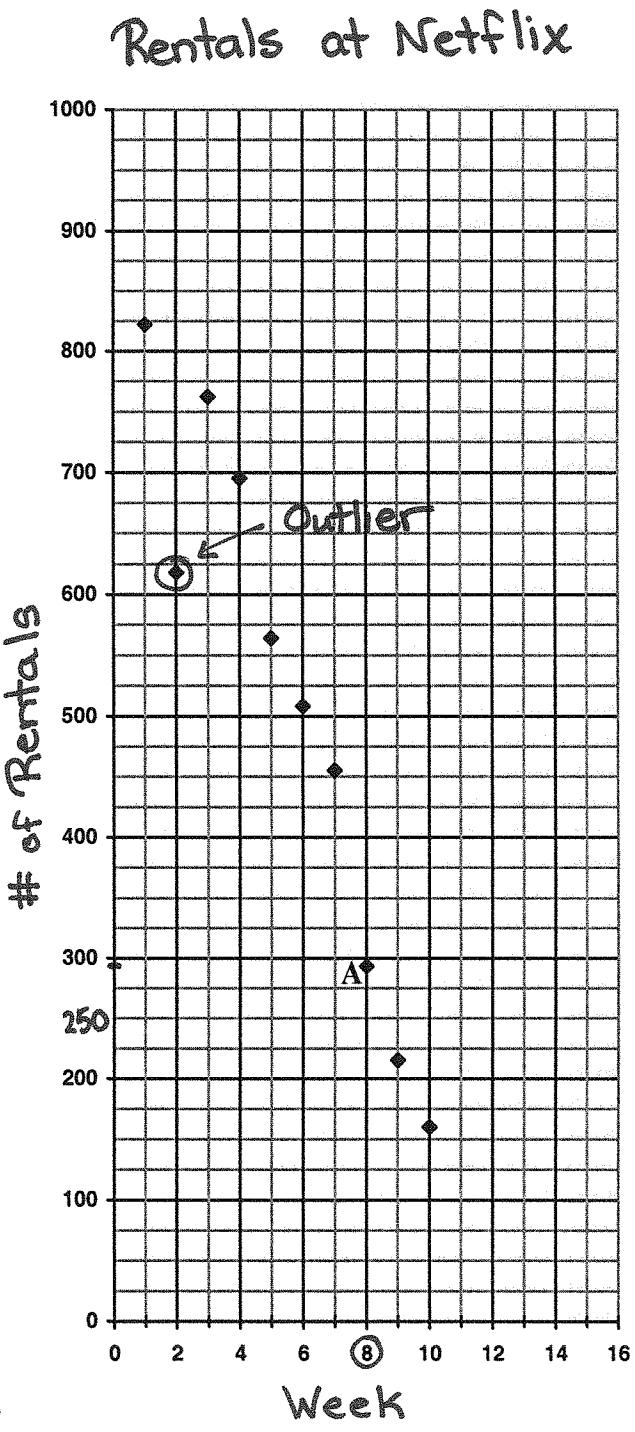
$= \dfrac{68-8}{9+1}$

$= \dfrac{60}{10}$

$= 6$

4. The following graphs shows the number of weeks since a movie was released on Netflix, and the number of times it has been "rented" that week.

Week	Number of Rentals
1	822
2	618
3	762
4	695
5	564
6	508
7	455
8	293
9	215
10	160



a) Label the axes and create a title for the graph.

b) State the coordinates of point A. What does this point mean in the context of the graph?

(8, 295)
↑ estimate

This means that in week eight, the movie was rented 295 times.

c) Circle an outlier on the graph. State one possible explanation for this point.

A different, more exciting, movie came out that week - so people rented that instead.

d) State the trend shown by this graph.

As the number of weeks increase, the number of rentals decreases

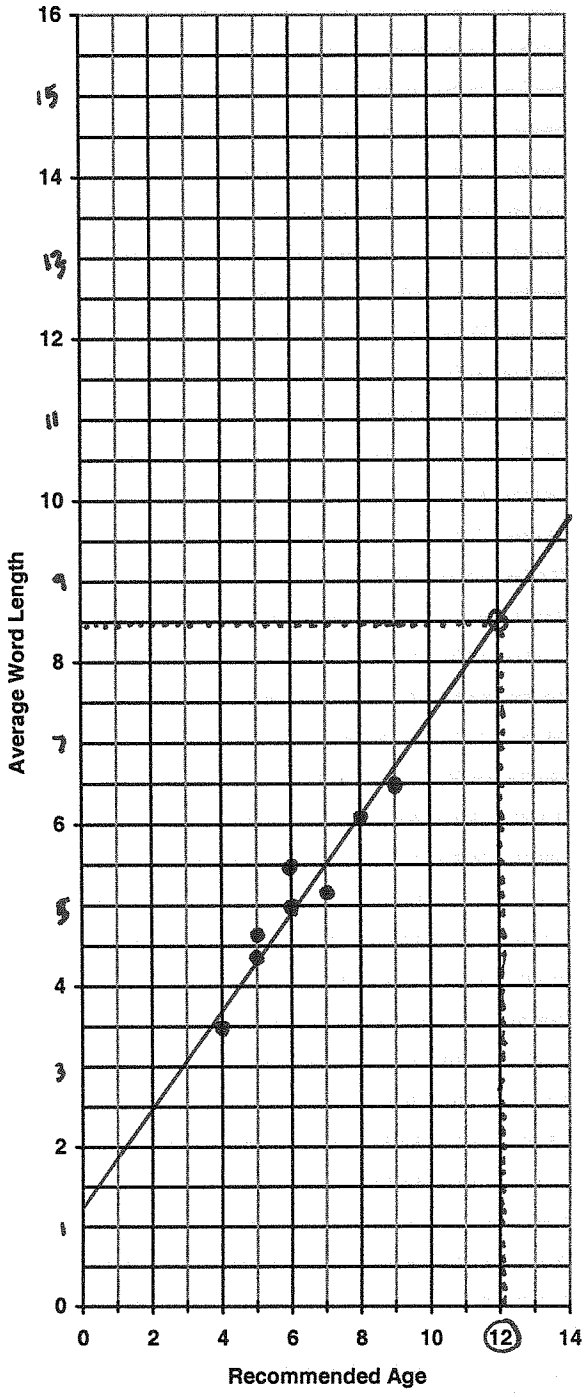
5. The table below shows the relationship between the recommended age level for a children's book, and the average length of the words in the book.

Recommended Age	4	6	5	6	7	9	8	5
Average Word Length	3.5	5.5	4.6	5.0	5.2	6.5	6.1	4.9

a) Create a scatter plot for the table of values. Include an appropriate title for your graph.

b) State the trend shown by the graph.

As the recommended age increases, the average word length increases.



c) Add a line or curve of best fit to your graph. Explain your reasoning.

The points seem to follow a line.

d) Using the graph, predict the *Average Word Length* of a book recommended for 12 year olds. Is this an example of interpolation or extrapolation? Explain your reasoning.

The average word length would be 8.5 letters. This is an example of extrapolation because you are making predictions outside of the data.

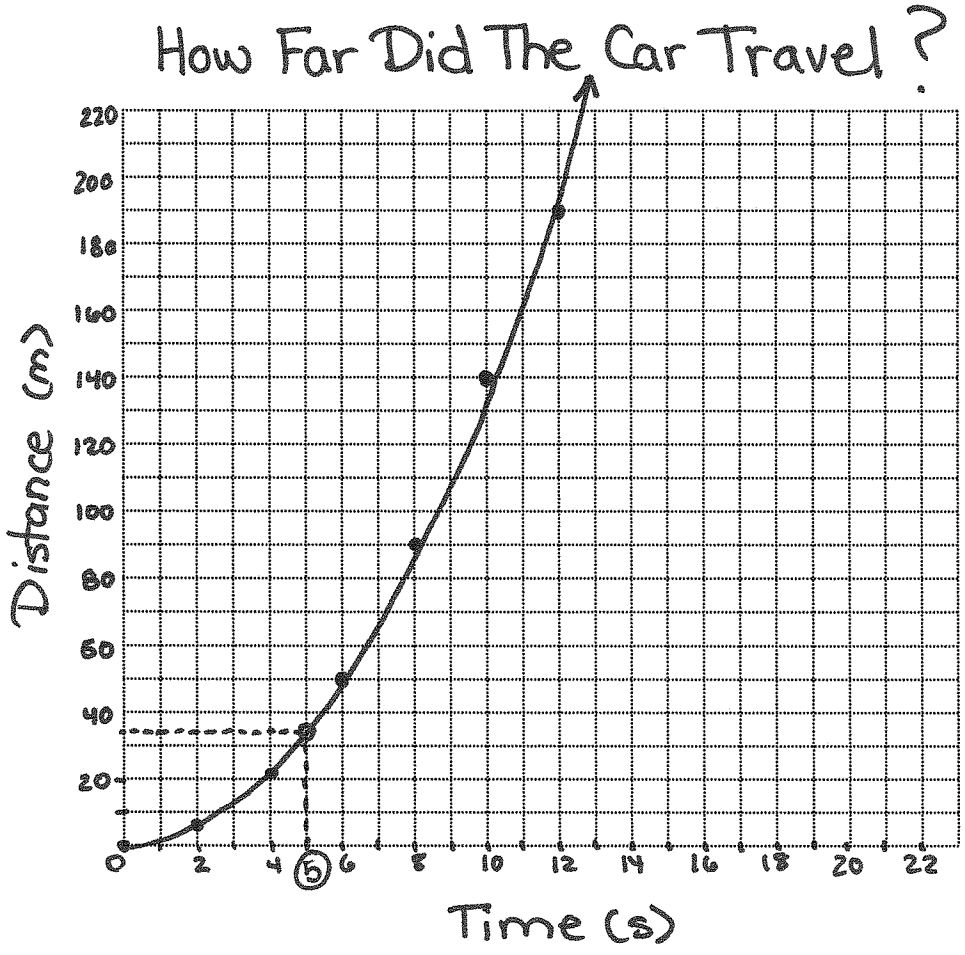
6. The following table shows the distance traveled by a car during the first 14 seconds of acceleration.

Time (s)	0	2	4	6	8	10	12
Distance (m)	0	6	22	50	90	140	190

a) State the independent variable and the dependent variable.

Ind = Time Dep = Distance

b) Create a scatter plot of the data. Include an appropriate scale, axis labels, and a title.



$\frac{12}{23} = 0.52$ (1)

$\frac{190}{22} = 8.6$ (10)

c) Add a line or curve of best fit to your graph. Explain your reasoning.

The points appear to make a curve.

d) According to the graph, how far would the car have traveled after 5 seconds? Is this an example of Interpolation or Extrapolation? Explain your reasoning.

It would have traveled 34 m (approximate). This is an example of interpolation because the point is "inside" the data from the table.