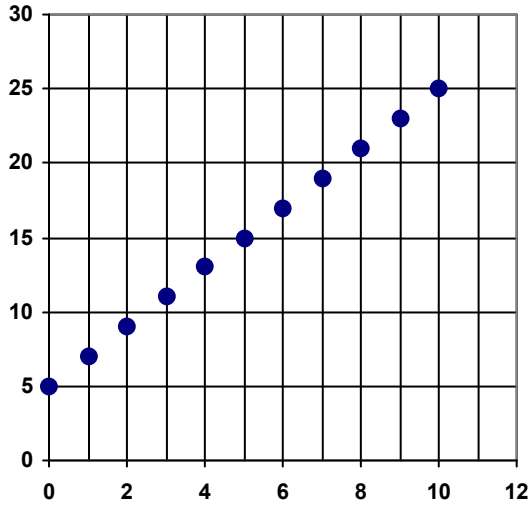
Line/Curve of Best Fit

For each of the following graphs:

- Determine if the graph is Linear, Non-Linear, or Neither
- Where appropriate, draw the line/curve of best fit
- State whether the trend is Increasing, Decreasing, or Neither

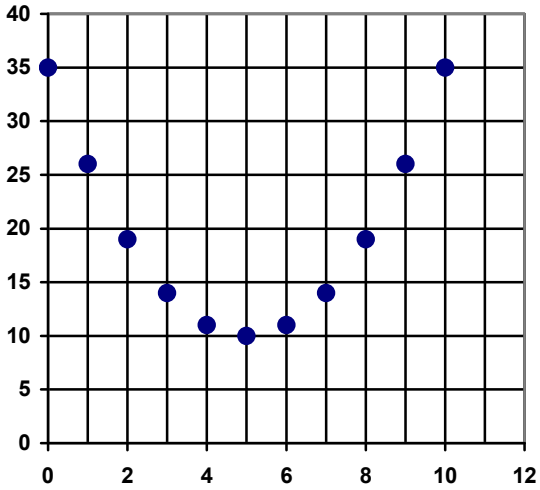
a)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

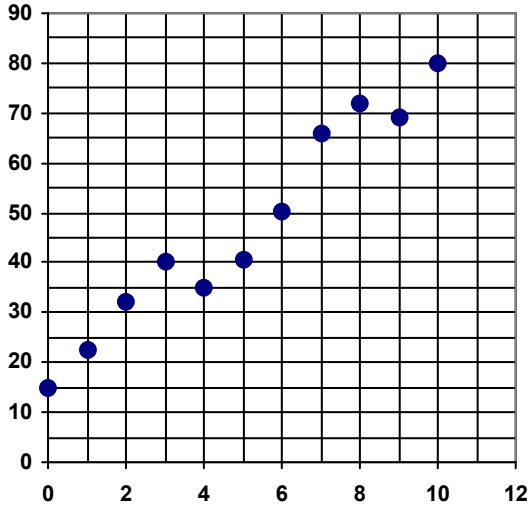
b)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

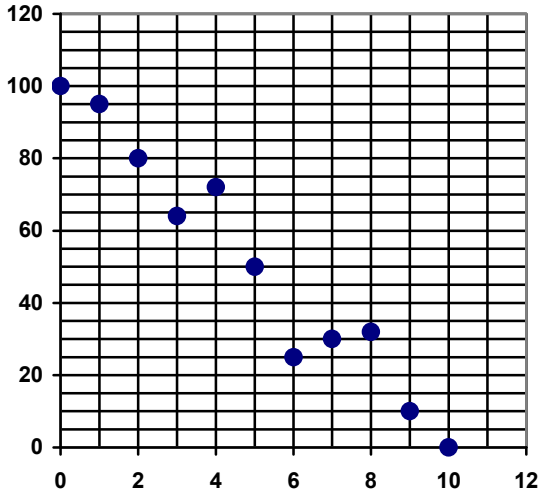
c)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

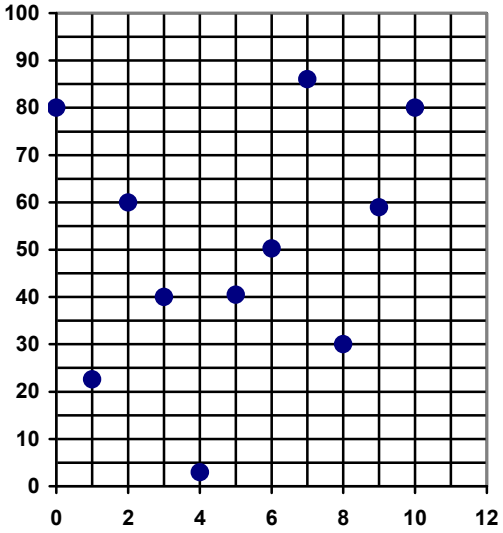
d)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

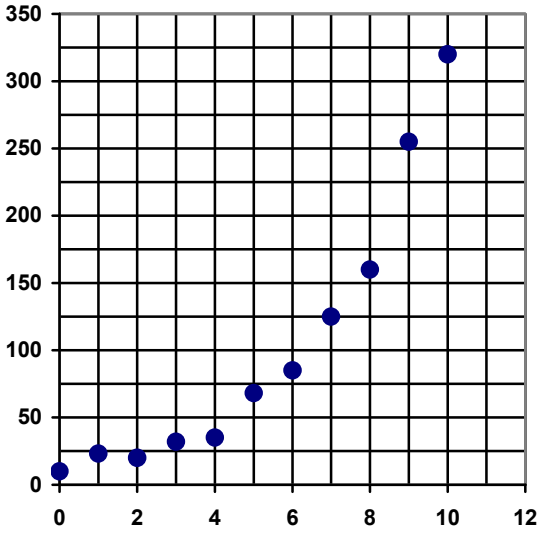
e)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

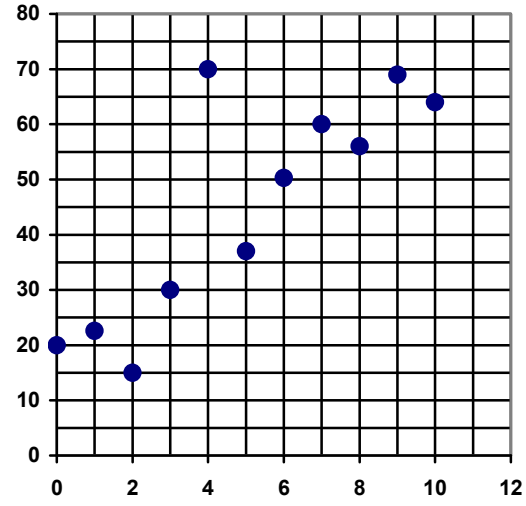
f)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

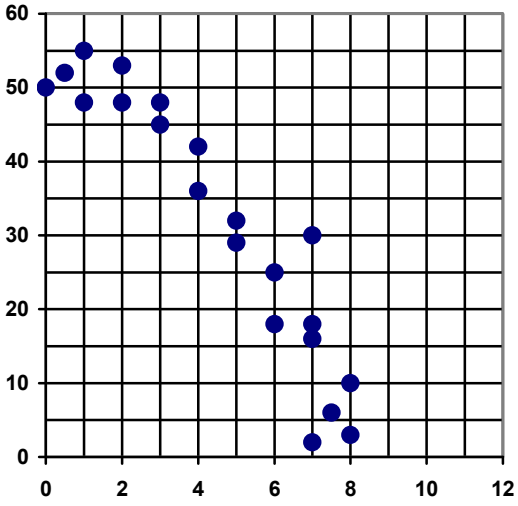
g)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

h)

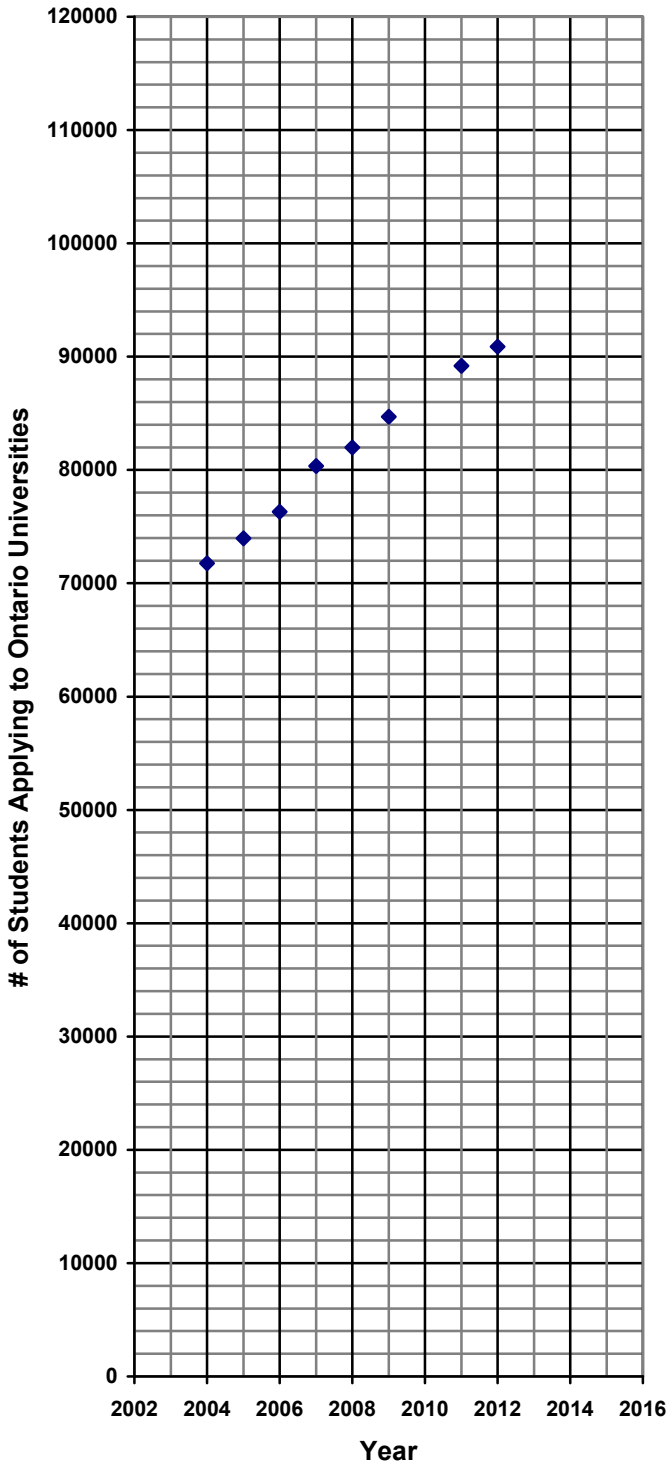


Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

2 The following table shows the number of students that applied to Ontario Universities since 2004.

Year	# of Students Applying
2004	71771
2005	73956
2006	76300
2007	80362
2008	83813
2009	84691
2011	89181
2012	90889



a) What is the scale on the x-axis?

b) What is the scale on the y-axis?

c) How did the person making the graph decide where to put the point for 2011?

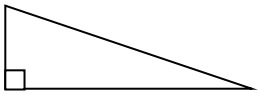
d) One of the points is plotted incorrectly. Which one is it? Correctly plot the point.

e) Draw in a line or curve of best fit.

f) Using your line/curve of best fit, predict the number of students that will apply in 2016.

g) Using your line/curve of best fit, predict the number of students that applied in 2010.

3 Several students recorded the following data for 12 triangles. Determine what type of relationship exists between the hypotenuse of a right triangle and the measure of one of the acute angles, knowing that the base is 10 cm.



Angle (°)	5	10	15	20	25	30	35	40	45	50	55	60
Hypotenuse	10.0	10.2	10.4	10.6	11.1	11.6	12.2	13.1	14.1	15.5	17.5	20.0

a) Represent the data graphically. Draw the line or curve of best fit.

b) Describe the relationship between the variables.

c) The point (15 , 10.4) is part of the data. What do the coordinates of this point mean?

Line/Curve of Best Fit

For each of the following graphs:

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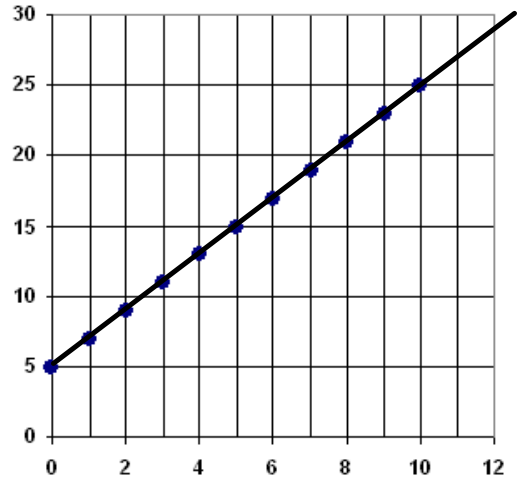
a)

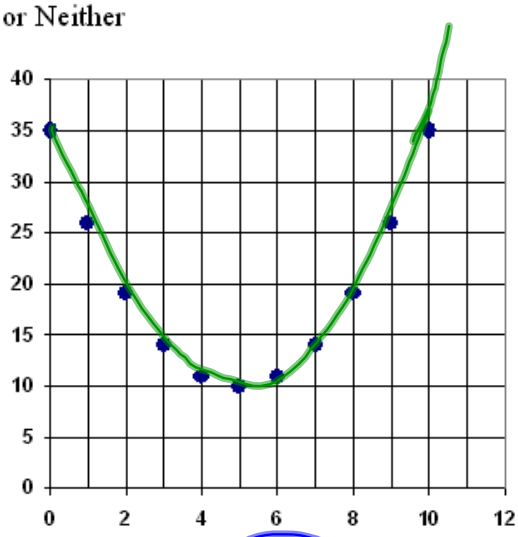


Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

Perfect Relationship

b)

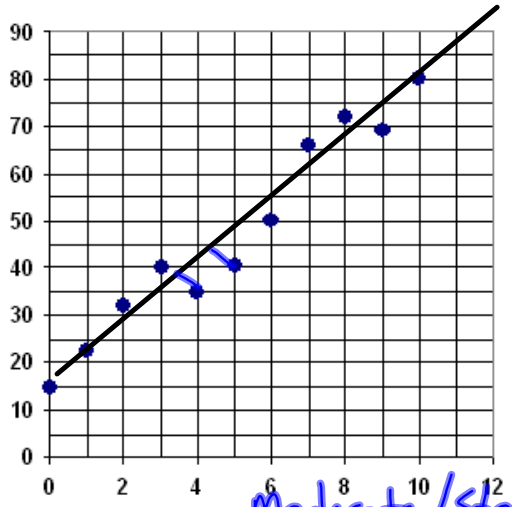


Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

Very Strong or Perfect Relationship

c)

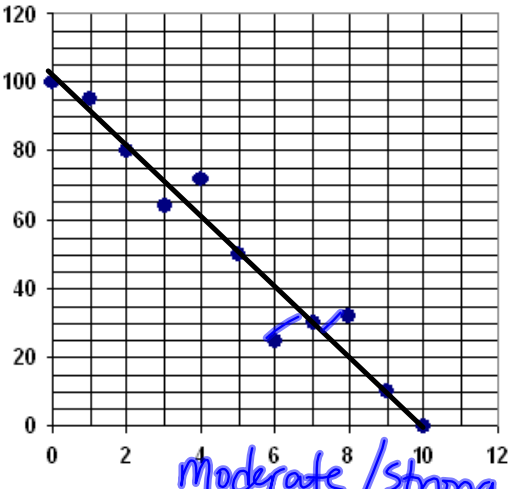


Moderate / Strong!

Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

d)



Moderate / Strong

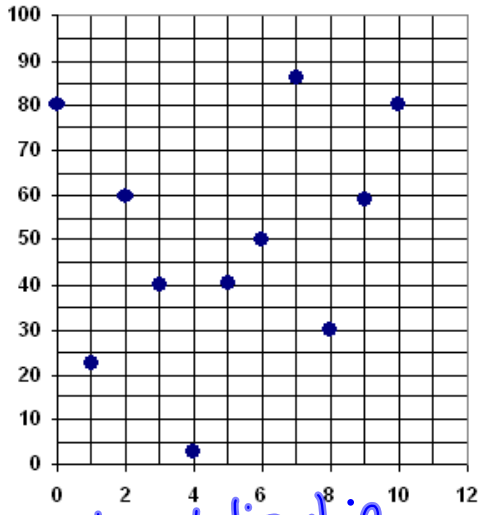
Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

To Draw a Line of best Fit!

1) Follow the trend
2) Equal # of points above / below the line
3) Line passes through as many points as possible.

e)

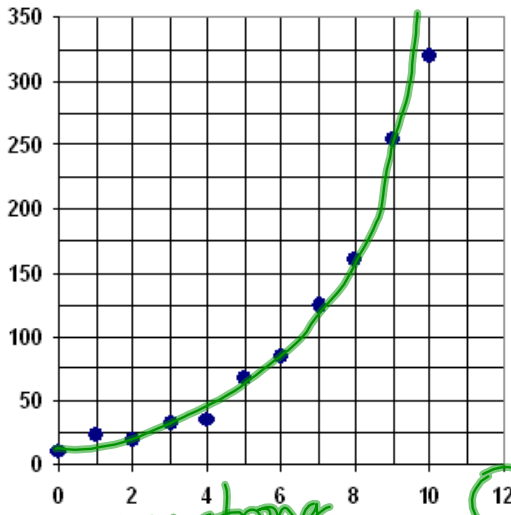


No relationship

Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

f)

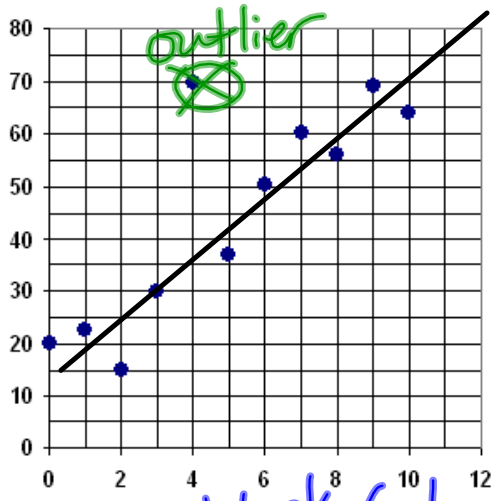


very strong

Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

g)

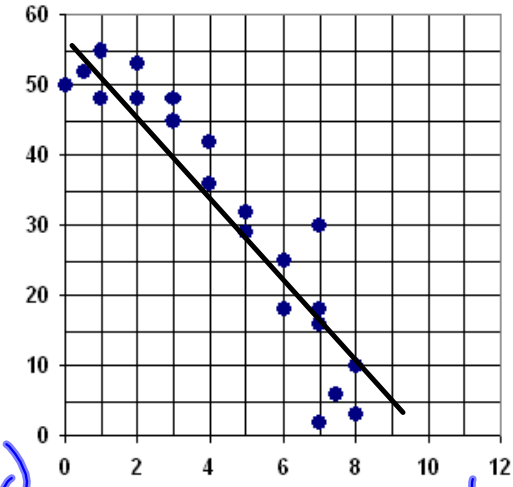


Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

Weak (w/ an outlier)

h)



Linear / Non-Linear / Neither

Increasing / Decreasing / Neither

weak

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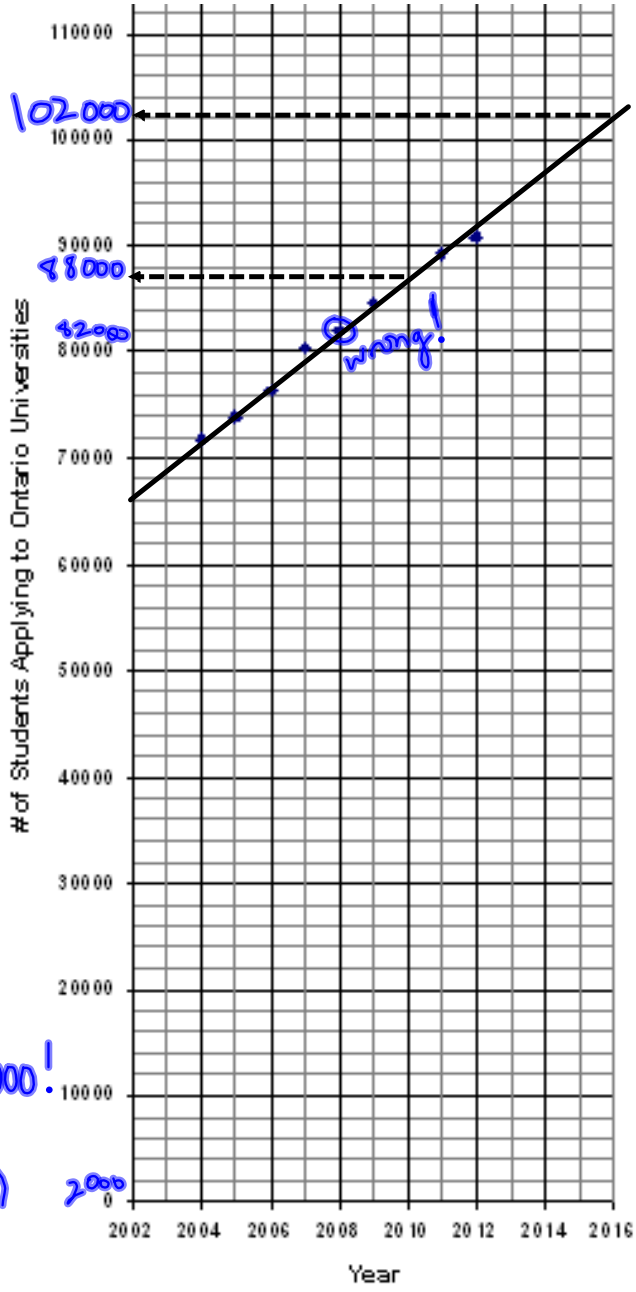


a) What is the scale on the x-axis?

1 square = 1 year

b) What is the scale on the y-axis?

1 square = 2000 students

c) How did the person making the graph decide where to put the point for 2011?

Close to the 90 000 line, higher than the 88000 line (89,131)

d) One of the points is plotted incorrectly. Which one is it? Correctly plot the point.

Circled on graph - too low! Plot it higher up, closer to 84 000!

e) Draw in a line or curve of best fit. (see graph)

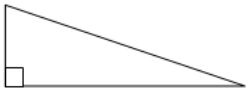
f) Using your line/curve of best fit, predict the number of students that will apply in 2016.

About 102,000 students will apply. See graph. This is extrapolation.

g) Using your line/curve of best fit, predict the number of students that applied in 2010.

About 87,000 students applied in 2010. See graph. This is interpolation.

3 Several students recorded the following data for 12 triangles. Determine what type of relationship exists between the hypotenuse of a right triangle and the measure of one of the acute angles, knowing that the base is 10 cm.



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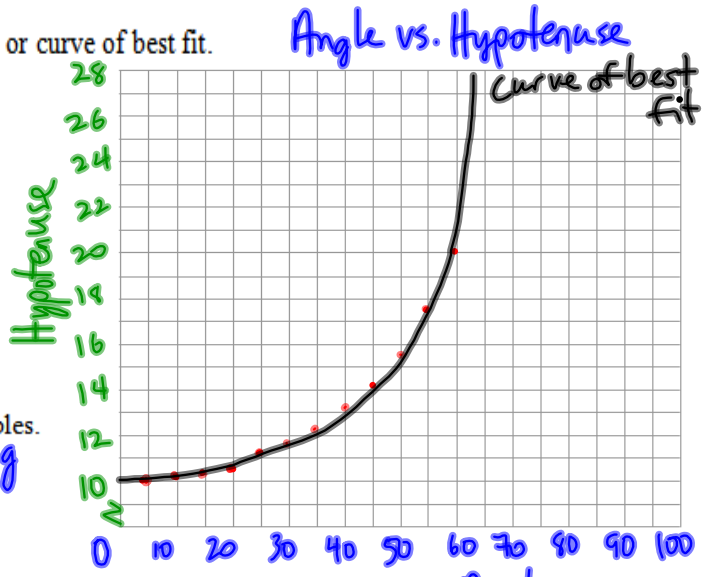
Hypotenuse	10.0	10.2	10.4	10.6	11.1	11.6	12.2	13.1	14.1	15.5	17.5	20.0

a) Represent the data graphically. Draw the line or curve of best fit.



b) Describe the relationship between the variables.

Non-linear (curving), increasing very strong

c) The point (15 , 10.4) is part of the data. What do the coordinates of this point mean?

When the angle is 15°, the hypotenuse for that right triangle must be 10.4 cm long!