

NAME:	SCIENCE TEACHER: (circle code)	9A
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SCIENCE

Year 9 Examination 2013

9A – 40 marks

**Make sure that you have answered all the questions in paper 9B
before you start this paper.**

Time allowed for both examinations: 2 hours

Answer all questions in the spaces provided on the paper.

Show all your working in calculations.

Give units for all answers (eg kg or m) unless they are already provided.

Check you have pages 1-13.

For Teacher Use

<i>Question</i>	1	2	3	4	5	6	7	<i>Total</i>
<i>Marks gained</i>								
<i>Marks available</i>	5	5	6	6	6	6	6	40

Question One: [5 marks]



Make a large scientific diagram (2D) of the apparatus needed to boil a beaker of water. Label your diagram.



Question Two [5 marks]

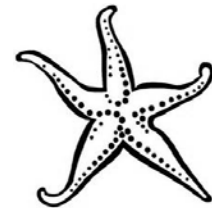
Here is a food chain. **grass** → **wildebeest** → **cheetah**



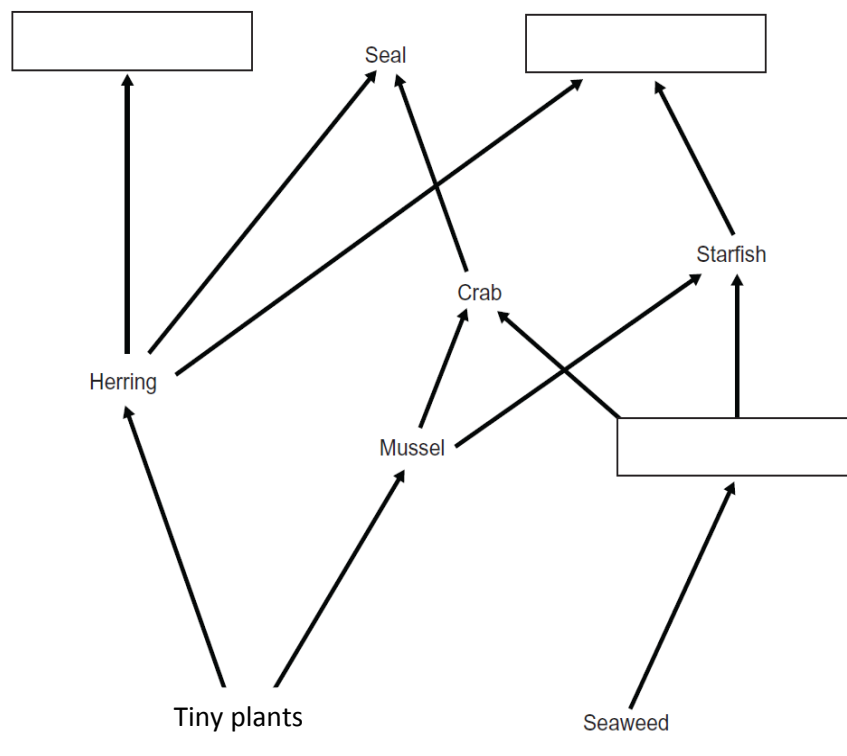
(a) Name the producer in this food chain?

(b) What is the scientific word for animals that eat meat?

- Dolphins eat herring (fish).
- Limpets are eaten by starfish and crabs.
- Seagulls eat herring and starfish



(c) Use this information to complete the food web.



(d) What do seals eat?

(e) What might happen to the **numbers** of dolphins if fishermen catch too many herring?



Question Three: [6 marks]

Part of the index of a book is shown below.

Acid rain	41	Floor insulation	33
Aero generator	12	Gas	26
Alaskan pipeline	17	Heating costs	31
Alternative energy	38	Hydrogen	39
Batteries	27	Kilowatt hour	30
Biogas	39	Nuclear energy	29
Cavity insulation	34	Oil – production	16
Coal – mine	25	– transportation	18
– production	22	Peat	45
Dams	39	Pollution	40
Double glazing	32	Radioactivity	28

(a) Which two pages should Wiremu look up to find out about gas and acid rain?

(b) Caitlin looked up pages 38 and 39. What was she trying to find out about?

(c) Circle **six** differences between diagrams A and B. Circle them **on diagram B**.

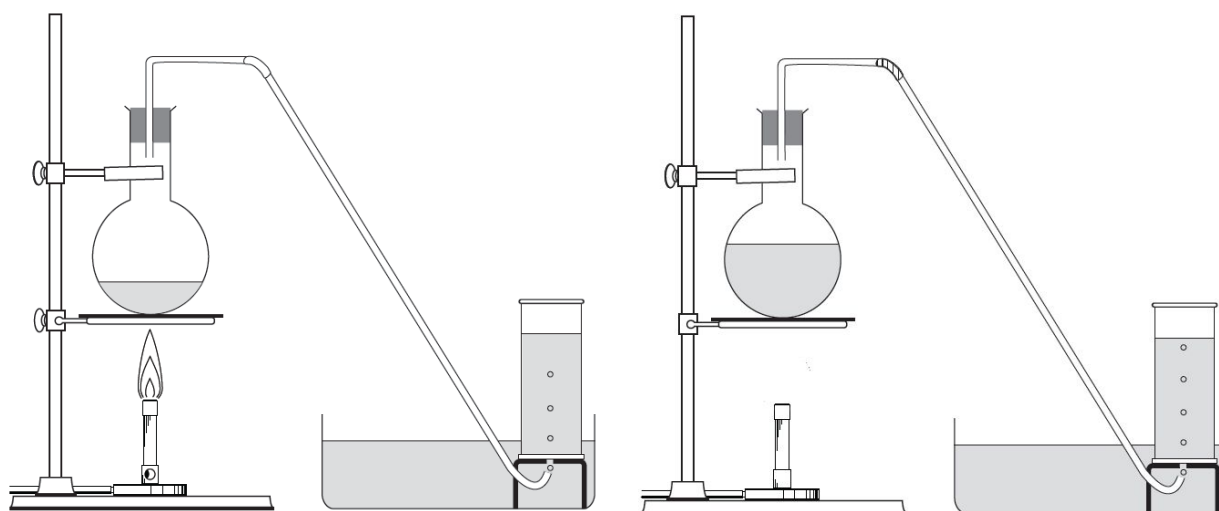
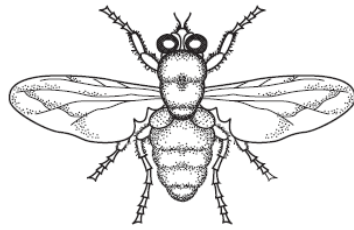


Diagram A

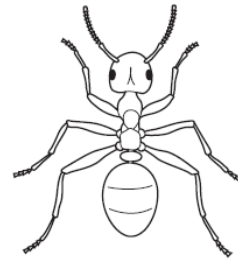
Diagram B



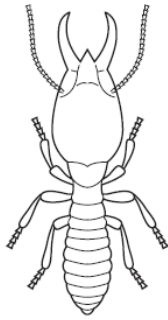
Here are five insects.



A



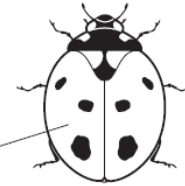
B



C



D



E

wing coverings

- 1 a wings go to 2
- b no wings go to 3
- 2 a wings are covered go to 4
- b wings are not covered*Musca*
- 3 a head longer than front leg*Termes*
- b head shorter than front leg*Formica*
- 4 a spots on wing coverings.....*Coccinella*
- b striped pattern on wing coverings.....*Graphosoma*

(d) Use the key to identify :

Insect A

Insect C

Insect E



Question Four: [6 marks]

An investigation was done to see if it is easier to judge distance with two eyes open or with only one eye open. A student was asked to hammer a nail into a piece of wood. The task was repeated with two eyes open and then with only one eye open.



The time taken is recorded in the table.

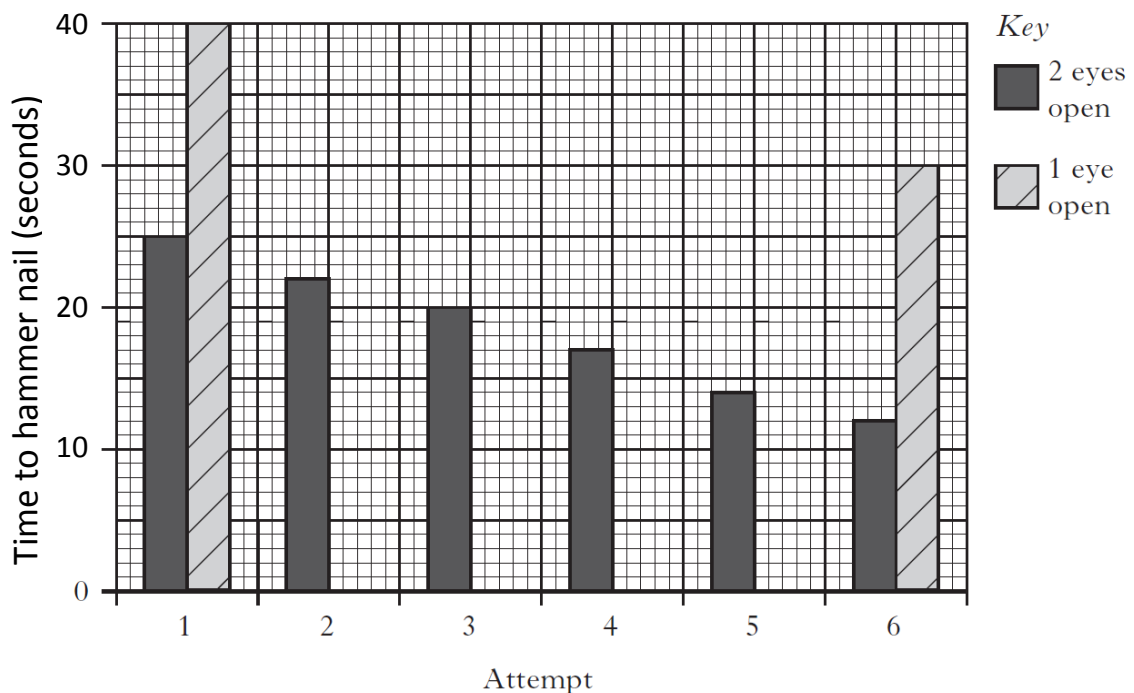
Attempt	Time to hammer nail (seconds)	
	Two eyes open	One eye open
1	25	40
2	22	36
3	20	34
4	17	34
5	14	32
6	12	30

(a) Give two conclusions which can be drawn from the results.

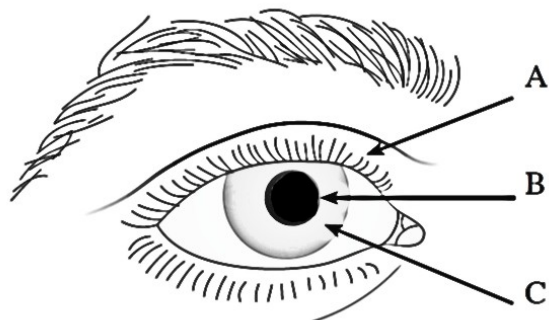
1.

2.

(b) Use the results to complete the bar chart below by drawing the missing bars.

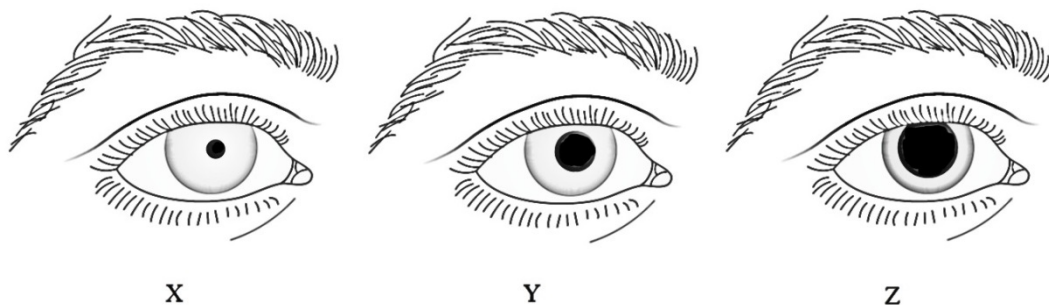


Look at the picture of the eye.



(c) Which label A, B or C points to the pupil?

Look at the three eyes below



(d) Which eye is in very bright light?

(e) Give a reason for your answer to (d)



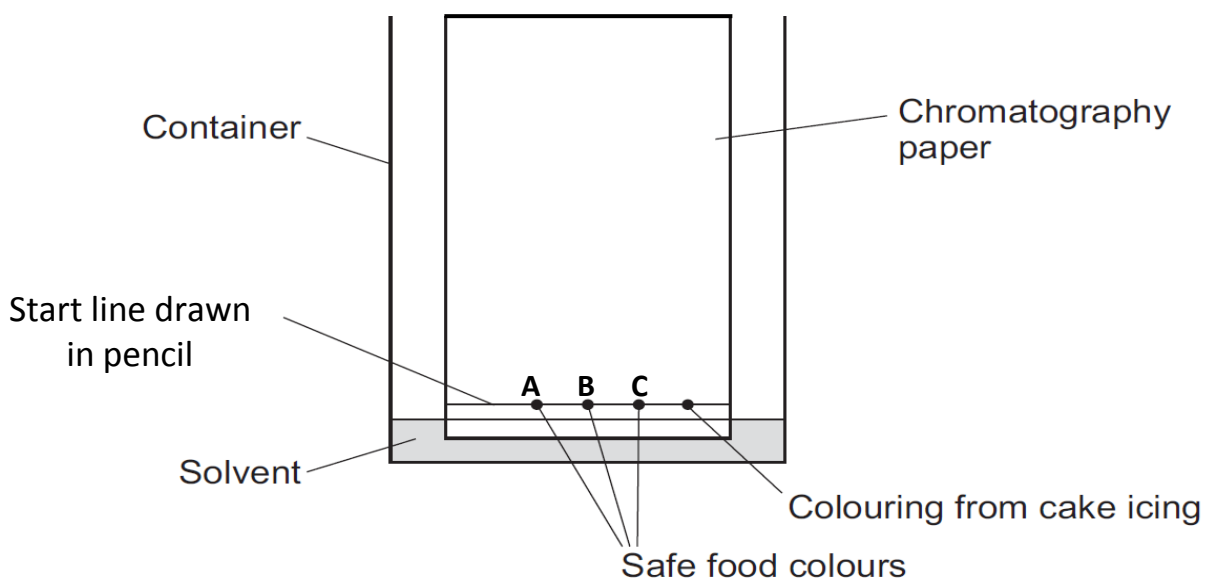
Question Five: [6 marks]

Cake icing is tested to check that safe food colours were used in these Minion cupcakes.



Chromatography can be used to see which colours are in cake icing.

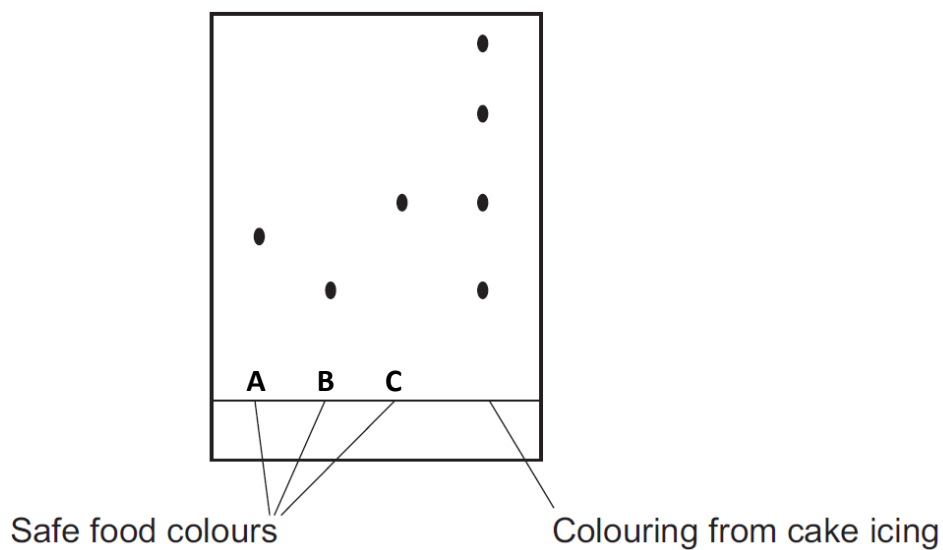
The diagram shows an experiment a student did.



(a) What would happen if the start line was drawn using a felt pen instead of pencil?

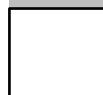


The diagram shows the results of the chromatography experiment.



What did the experiment show about the colouring from cake icing? (Circle the correct answers).

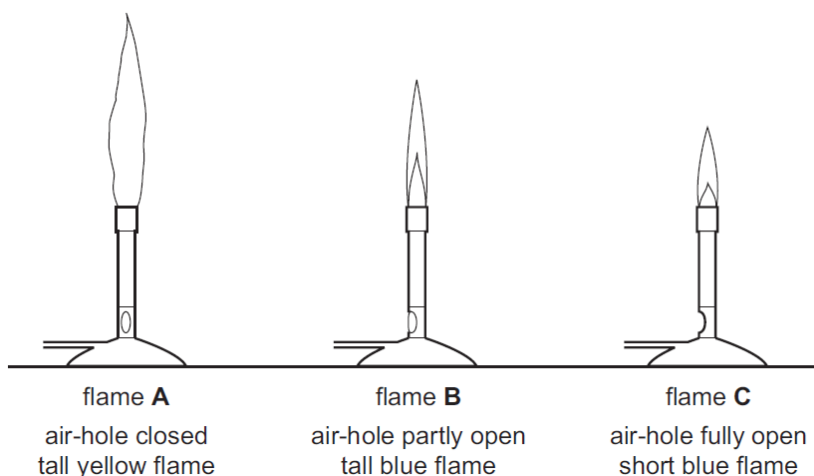
- (b) Colour A is { **more / less** } soluble than colour B.
- (c) The colour from cake icing is a mixture made up of { **3 / 4** } different colours.
- (d) Colour { **A / B** } is found in the icing.
- (e) The icing colour is { **safe / unsafe** } to eat.



Question Six: [6 marks]

The science class is doing experiments with Bunsen burners.

David finds out that he can get three different types of flame using his Bunsen burner.

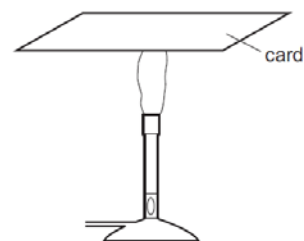


(a) What **colour** is the tallest flame?

(b) Which **flame** should you use when you leave your Bunsen for a few minutes so other people can see it? (Circle your answer)

A B C

David holds a thin white card in each flame for about 5 seconds, as shown. The results are shown below.



flame A

there is a black powder on the card



flame B

there is a partly-burned ring

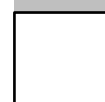


flame C

the card bursts into flames

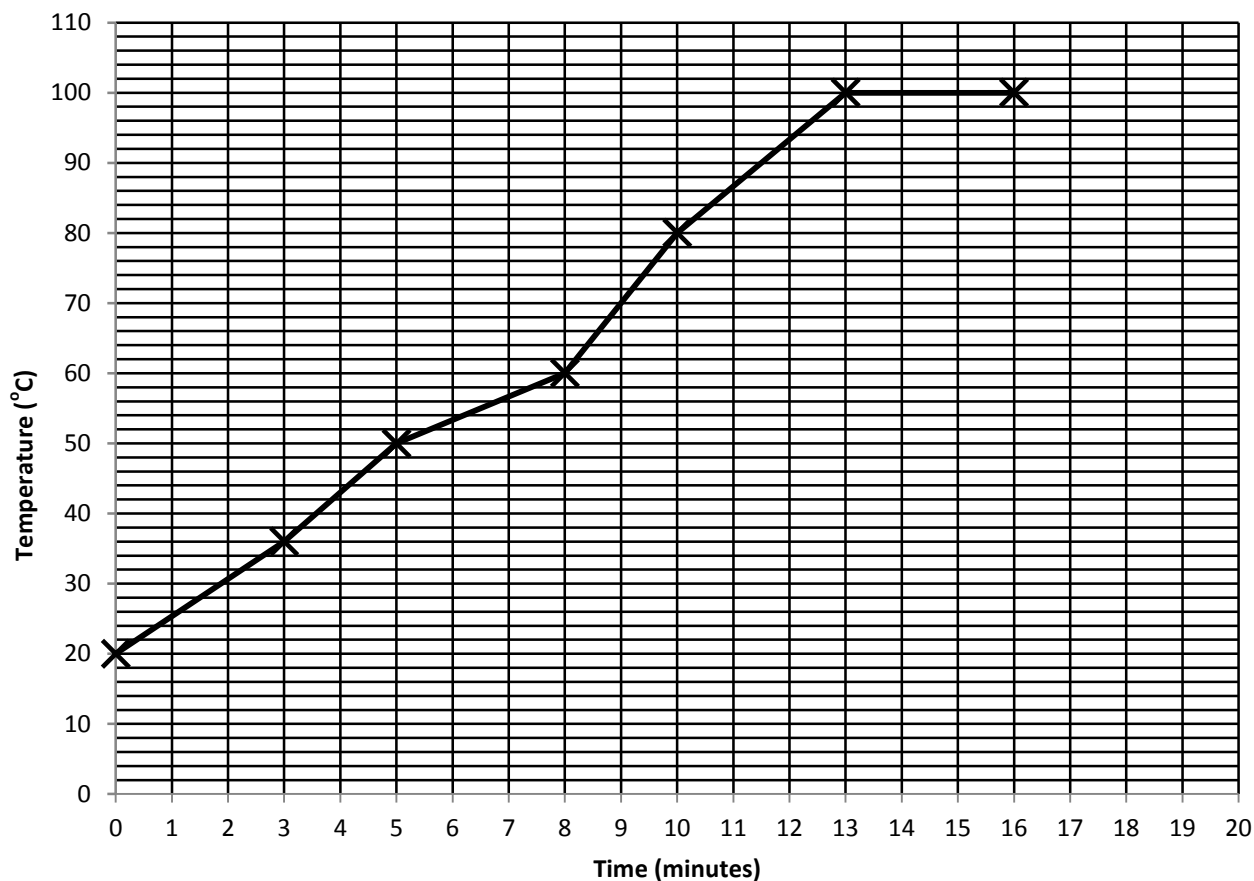
(c) Which **flame** is the hottest? How do you know?

Flame _____



(d) Why don't we use flame A in heating experiments.

David decided to test how quickly water would boil using a blue flame. His results are graphed below.



(e) How long did it take David's water to **boil**?



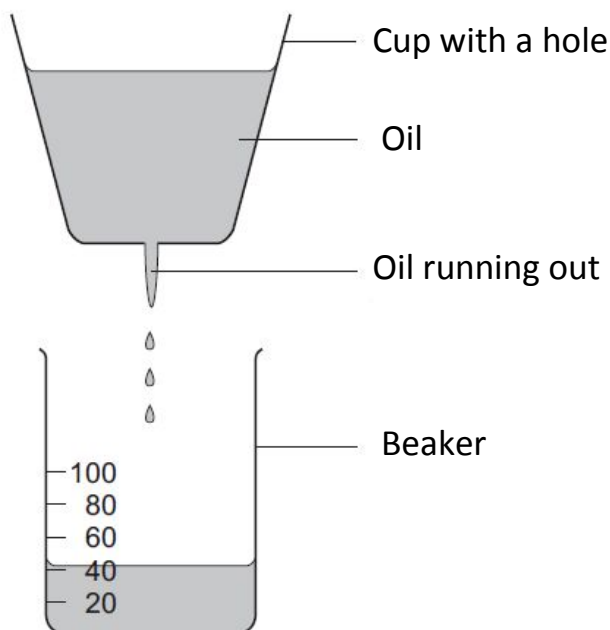
Question Seven: [6 marks]

A student did an experiment to study the “thickness” of oil at different temperatures.



Method:

1. Pour the oil into the cup.
2. Measure the time for 100 mL of the oil to go through the hole in the cup.

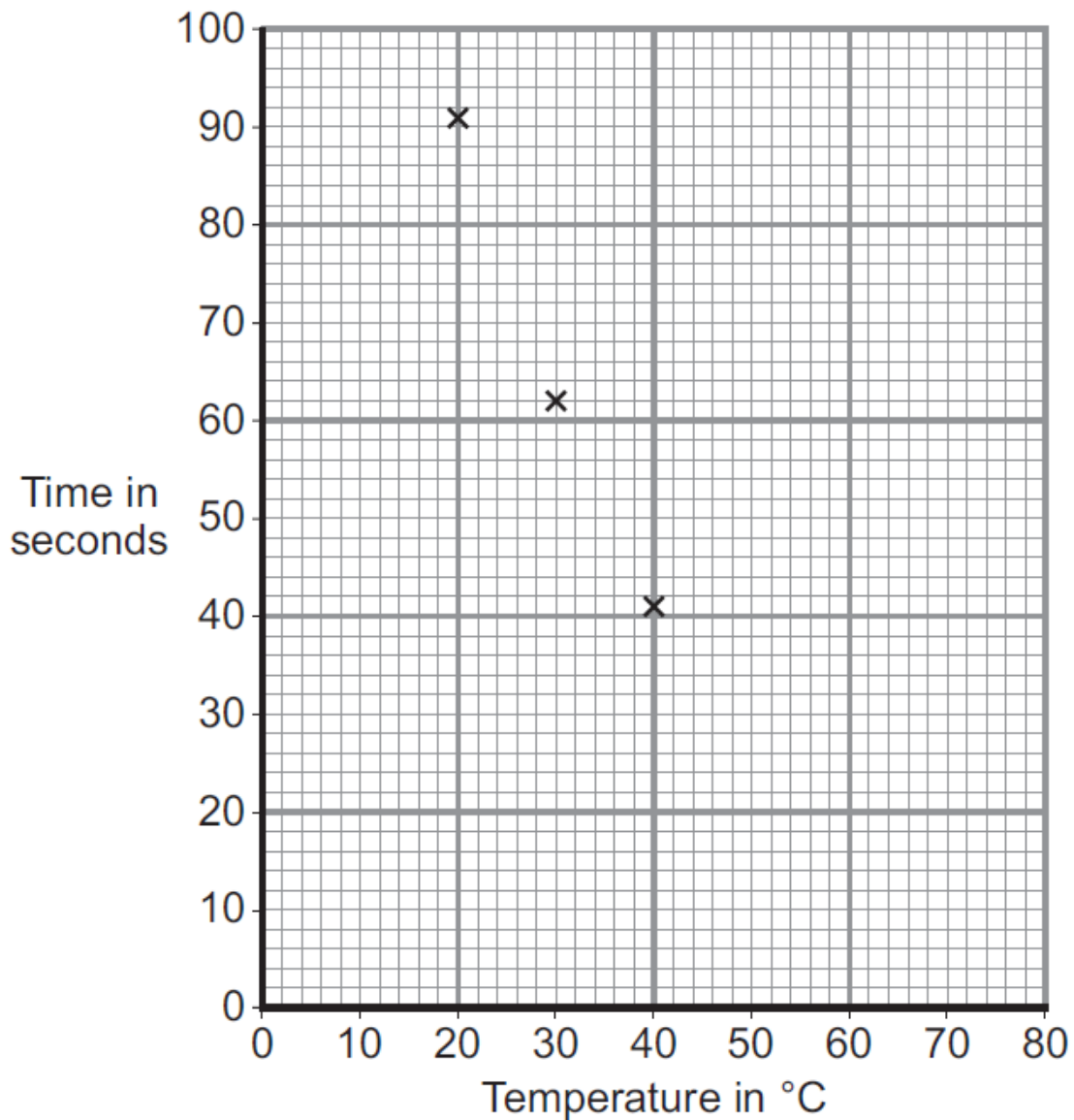


Results.

Temperature of oil ($^{\circ}\text{C}$)	Time for oil to go through the cup (s)
20	91
30	62
40	41
50	25
60	16
70	11

- (a) Use the results to complete the **line graph**.
- (b) Join the points with a smooth curve. Don't use a ruler!





(c) Look at your graph. About how long would it take for the oil to go through the cup at **35°C**? (Circle answer)

45 seconds ● **50 seconds** ● **55 seconds**

(d) What does the experiment show? Write a **conclusion** for this experiment.

END OF EXAM

