



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination 2014

**Mathematics**  
**(Project Maths – Phase 2)**

Paper 2

Ordinary Level

Monday 9 June – Morning, 9:30 to 11:30

300 marks

Examination number

Centre stamp

Running total

For examiner

Question	Mark	Question	Mark
1		11	
2		12	
3		13	
4		14	
5			
6			
7			
8			
9			
10		Total	

Grade

## Instructions

There are 14 questions on this examination paper. Answer **all** questions.

Questions do not necessarily carry equal marks. To help you manage your time during this examination, a maximum time for each question is suggested. If you remain within these times you should have about 10 minutes left to review your work.

Write your answers in the spaces provided in this booklet. You may lose marks if you do not do so. You may also ask the superintendent for more paper. Label any extra work clearly with the question number and part.

The superintendent will give you a copy of the *Formulae and Tables* booklet. You must return it at the end of the examination. You are not allowed to bring your own copy into the examination.

You will lose marks if all necessary work is not clearly shown.

Answers should include the appropriate units of measurement, where relevant.

Answers should be given in simplest form, where relevant.

Write the make and model of your calculator(s) here:



**Question 2**

**(Suggested maximum time: 5 minutes)**

Students in a class were carrying out a survey on sleeping patterns of people aged between 40 years and 60 years, inclusive. The following questions were considered for the survey.

In each case, give **one reason** why the question is unsuitable, and rewrite it in a **suitable form**.

**(a)** Question 1: Put a tick (✓) in **one** box below to indicate your age, in years.

40 – 45

45 – 50

50 – 55

55 – 60

Reason:

Suitable form:

**(b)** Question 2: Normal people sleep eight hours a night. Do you sleep eight hours a night?

Reason:

Suitable form:

















**Question 7****(Suggested maximum time: 5 minutes)**

(a) The following terms can be used to describe the probability that an event happens.

**Likely      Certain      Unlikely      Impossible      50 : 50**

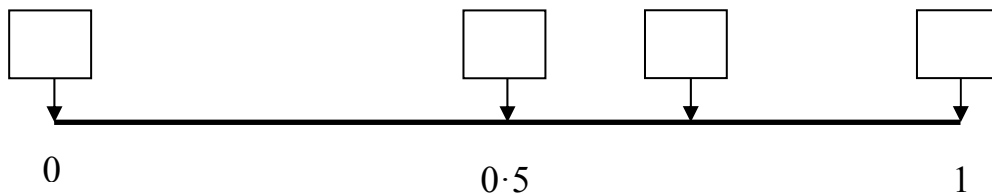
For each event in the table below, use one of these terms to describe the probability that it happens.

<b>Event</b>	<b>Probability</b>
When a fair coin is tossed you get a head.	
If you buy a lottery ticket for next Saturday's draw, you will win the jackpot.	
The 1st of January will be New Year's Day.	

(b) Four events, **A**, **B**, **C**, and **D**, are listed below.

- A:** You pick a red ball from a bag containing 3 black and 7 red balls.
- B:** You get a natural number less than 7 when you roll a regular six-sided die.
- C:** You pick a red card from a deck of playing cards.
- D:** You pick a yellow ball from a bag containing 4 red balls and 2 white balls.

Write each of the letters **A**, **B**, **C**, and **D** into the correct box on the probability scale below, to show the probability of each event.

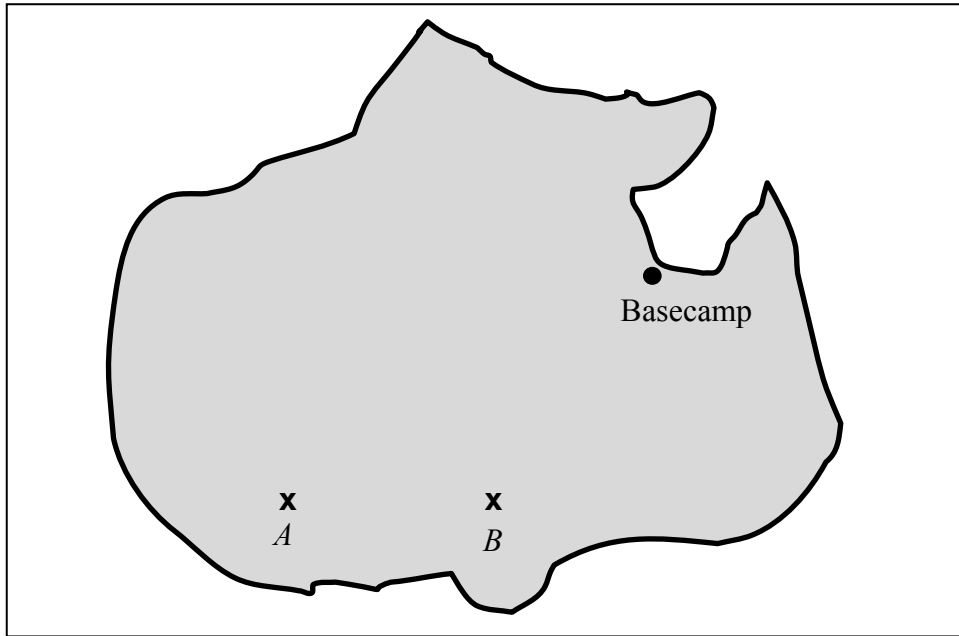


**Question 8**

(Suggested maximum time: 10 minutes)

On a reality TV show, contestants have to perform tasks on an island. They are given the map of the island shown below.

Two points,  $A$  and  $B$ , are marked with  $\times$ 's. Basecamp is also marked.



The contestants are told that treasure is buried on the island at a point  $T$ .  $T$  is 20 km from  $A$  and 20 km from  $B$ .

- (i) The map is drawn to a scale of 1 cm to 5 km. **On the map**, how far is  $T$  from the point  $A$ ?

	Answer: _____ cm
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- (ii) Using a compass, construct the point  $T$  on the map. Label the point  $T$ .
- (iii) Measure the distance from the point  $T$  to Basecamp on your map, and hence find the actual distance, in km, from the point  $T$  to Basecamp.

	Answer: _____ km
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- (iv) The contestants find the treasure at 13:00 and return to Basecamp immediately. If they walk at an average speed of 6 km per hour, find the time they reach Basecamp.

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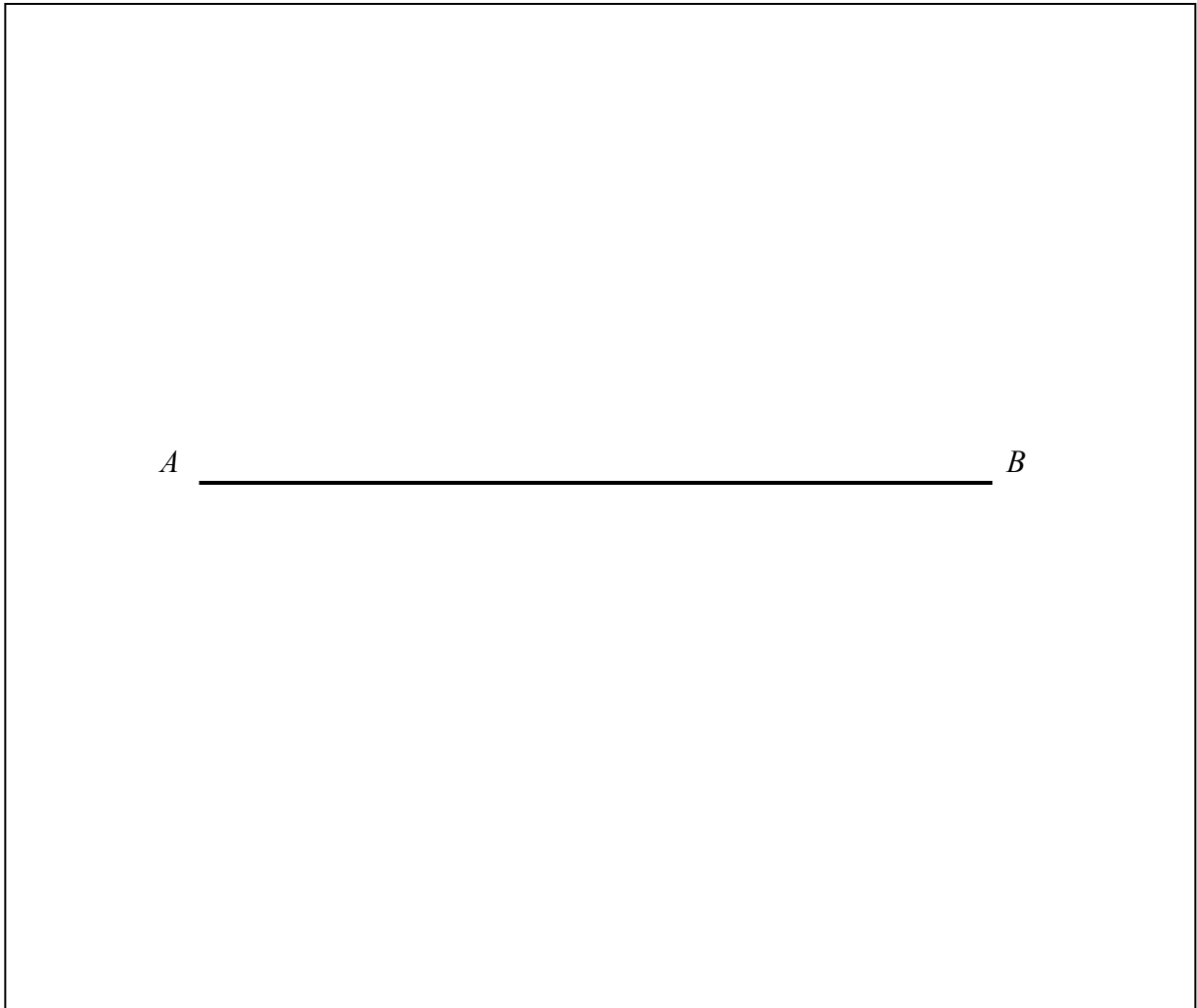




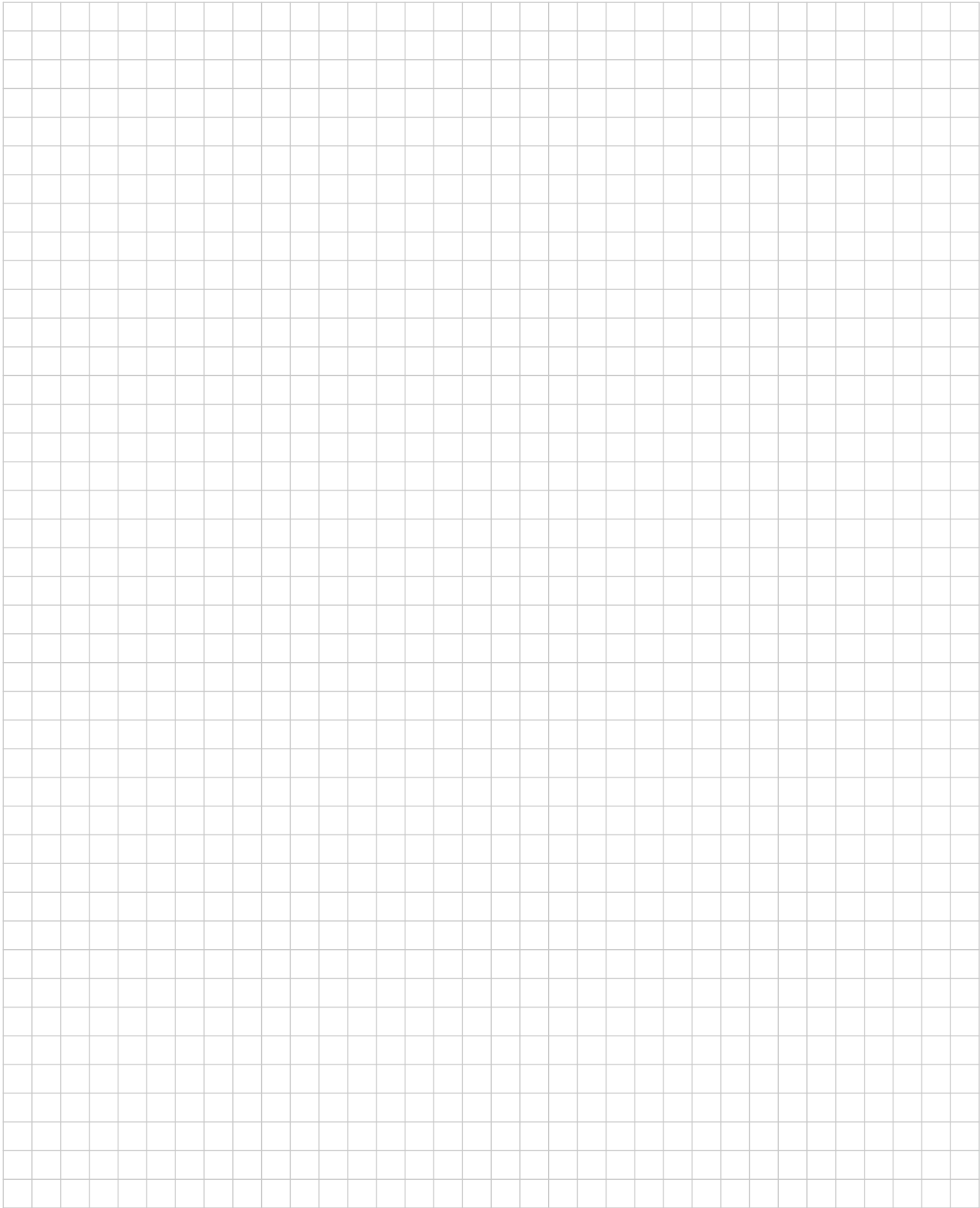
**Question 14**

**(Suggested maximum time: 5 minutes)**

Without measuring, divide the line segment  $[AB]$  below into 3 equal segments.



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