



Coimisiún na Scrúduithe Stáit  
State Examinations Commission

Junior Certificate Examination, 2013

# Mathematics

## (Project Maths – Phase 3)

Foundation Level

Friday 7 June      Afternoon 2.00 to 4.00

300 marks

Examination number

Centre stamp

Running total

For examiner

Question	Mark	Question	Mark
1		11	
2		12	
3		13	
4		14	
5		15	
6		16	
7		17	
8		18	
9		19	
10		Total	

Grade

## Instructions

There are 19 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. There is space for extra work at the back of the booklet. 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.

Marks will be lost 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:

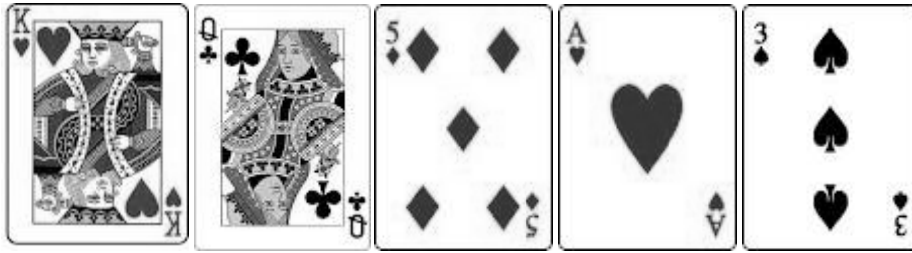






**Question 7**

**(suggested maximum time: 2 minutes)**



**(a)** A card is picked at random from the five cards above.

What is the probability of picking:

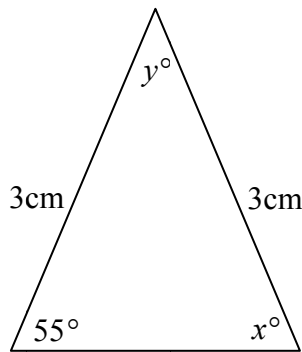
**(i)** a King?

**(ii)** a King or a Queen?

**(b)** What fraction of the five cards above are hearts?

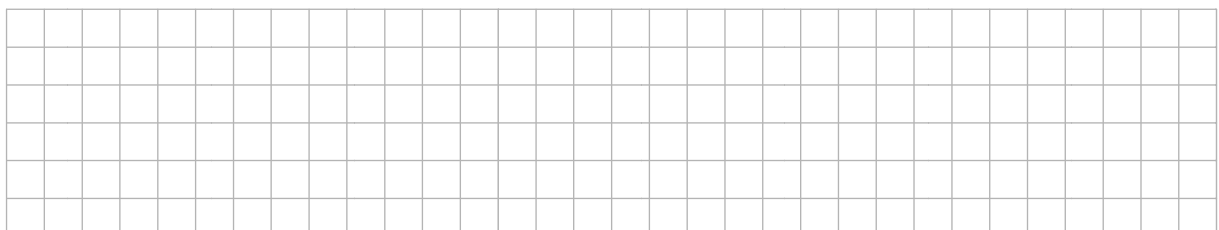
**Question 8**

**(suggested maximum time: 2 minutes)**



**(i)** Write down the value of  $x$ .  $x =$  \_\_\_\_\_

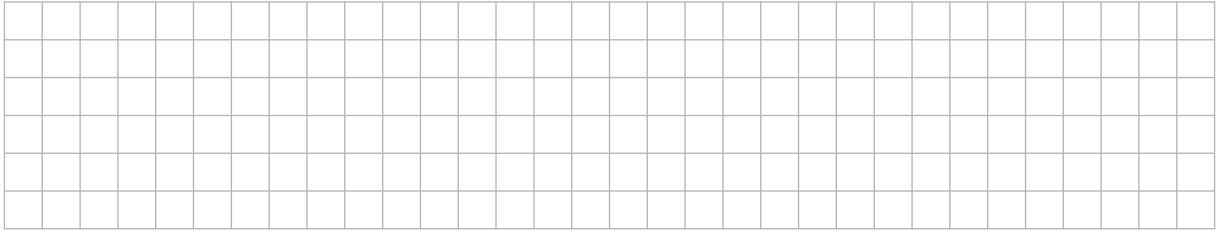
**(ii)** Find the value of  $y$ .  $y =$  \_\_\_\_\_



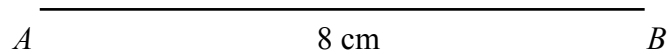
**Question 9**

**(suggested maximum time: 10 minutes)**

- (a) Explain what it means to say that a triangle is *equilateral*.



- (b) Construct a triangle  $ABC$  with  $|AB| = 8$  cm,  $|BC| = 8$  cm and  $|AC| = 8$  cm.  
Show all your construction lines.



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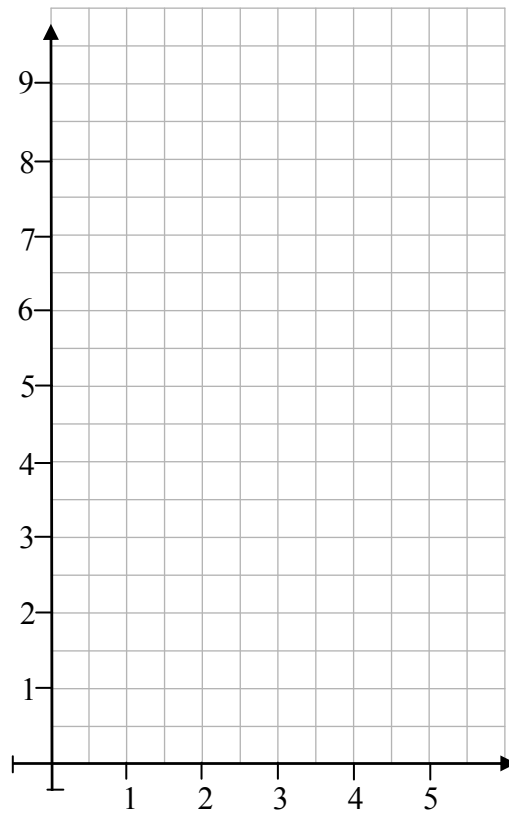






**Question 13****(suggested maximum time: 10 minutes)** $A(1, 3)$  and  $B(5, 9)$  are two points.

- (a) Plot the points  $A$  and  $B$  on the co-ordinate plane below.



- (b) Find the co-ordinates of  $C$ , the midpoint of  $[AB]$ .


- (c) Find the slope of  $AB$ .

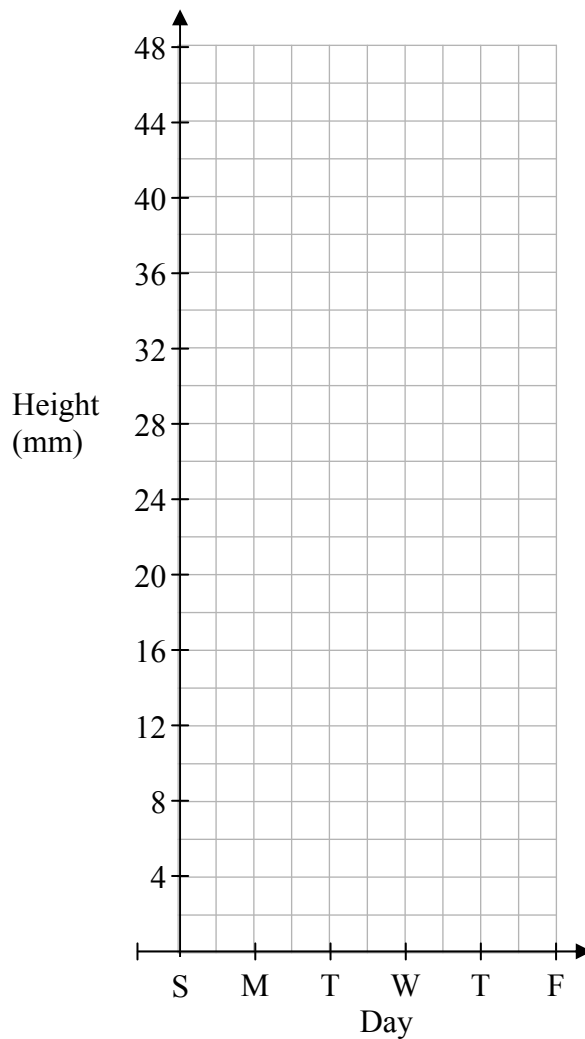

**Question 14**

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

The table below shows the height of a plant over five days.

Day	Height
Sunday	18 mm
Monday	28 mm
Tuesday	36 mm
Wednesday	42 mm
Thursday	46 mm

**(a)** Draw a graph to show the information given in the table above.



**(b)** What height would you expect the plant to be on Friday? Give a reason for your answer.

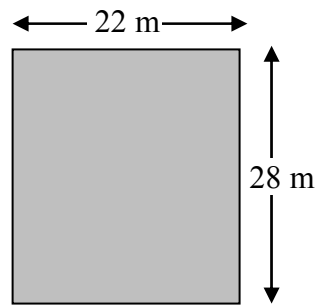
Height on Friday =	
Reason:	

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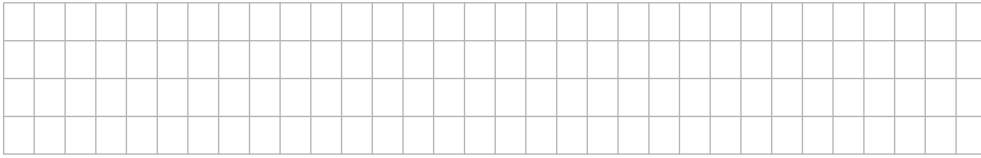




- (c) The floor of the lobby of the hotel she stayed in was rectangular in shape. It measured 22 metres by 28 metres.

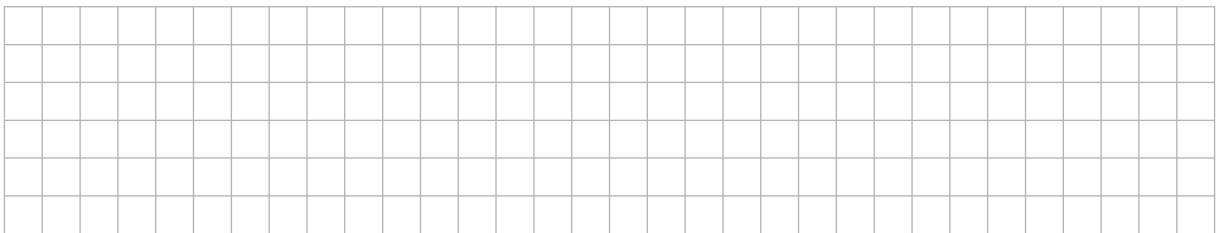


Calculate the area of the floor.



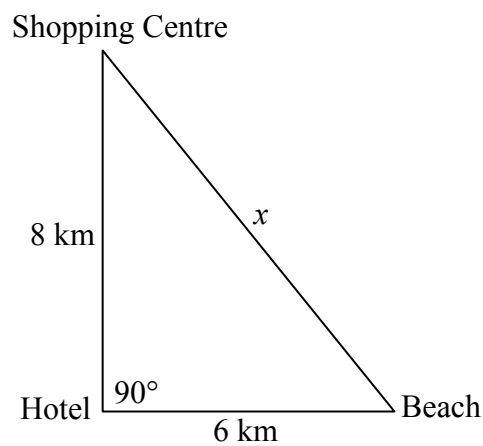
- (d) There was a circular rug on the floor of the hotel lobby. It had a radius of 7 metres.

Calculate the area of the rug. Use  $\pi = \frac{22}{7}$ .

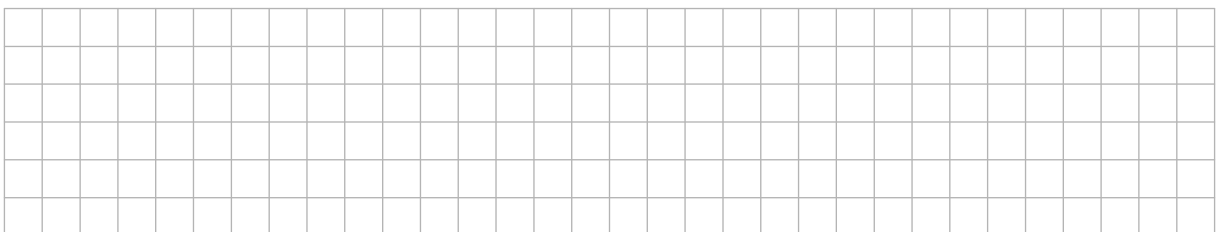


- (e) When Jessica arrived at the hotel, she was told that the beach was 6 kilometres directly East and that the nearest shopping centre was 8 kilometres directly North.

The hotel receptionist drew the following map for her:



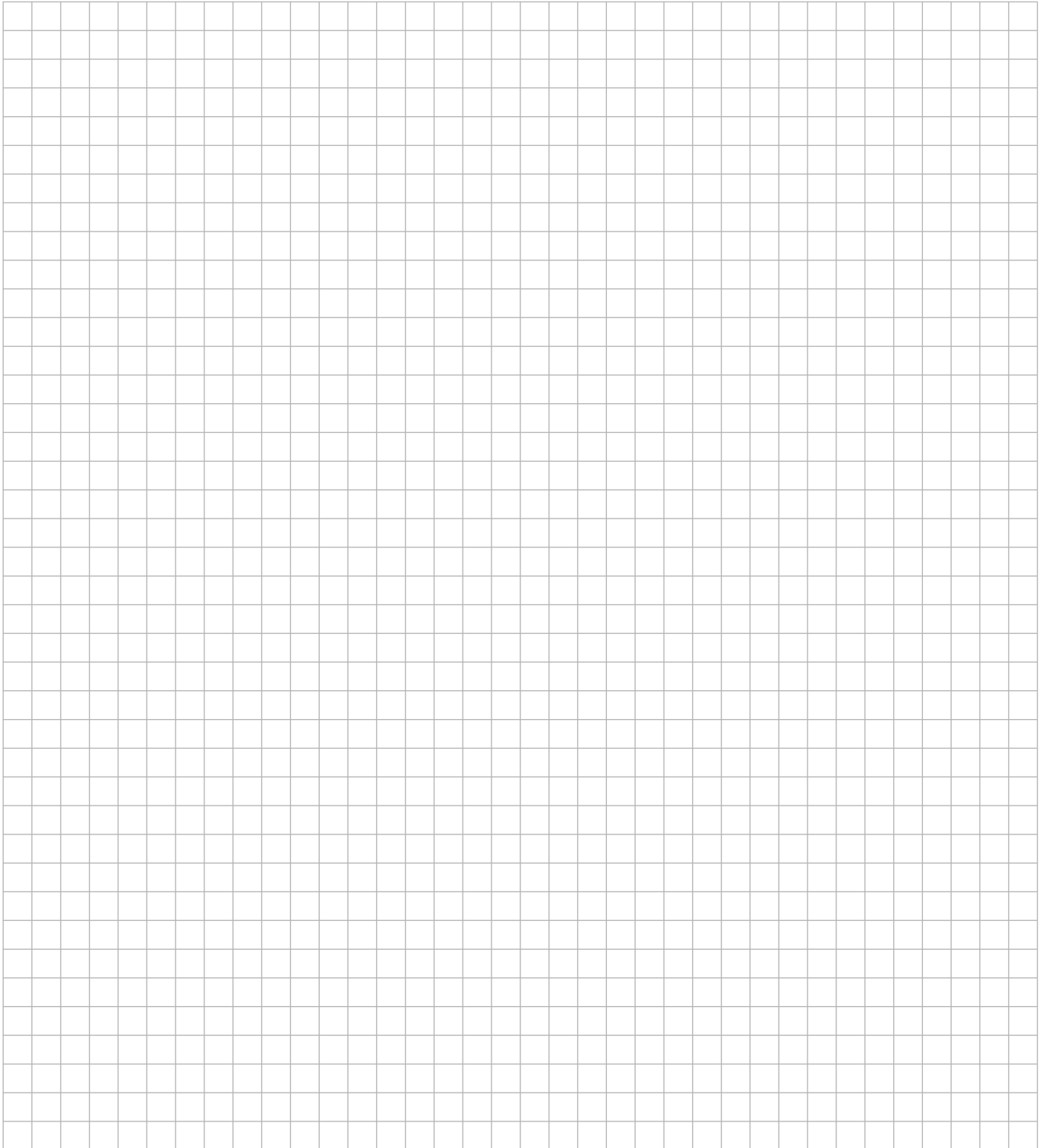
Using Pythagoras' Theorem, find the shortest distance (marked  $x$  in the diagram) from the shopping centre to the beach.



You may use this page for extra work.



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