

## ***Follower*** **by Seamus Heaney**

My father worked with a horse-plough  
His shoulders globed like a full sail strung  
Between the shafts and the furrow.  
The horses strained at his clicking tongue. 4


An expert. He would set the wing  
And fit the bright steel-pointed sock.  
The sod rolled over without breaking.  
At the headrig, with a single pluck 8

Of reins the sweating team turned round  
And back into the land. His eye  
Narrowed and angled at the ground,  
Mapping the furrow exactly. 12

I stumbled in his hob-nailed wake,  
Fell sometimes on his polished sod;  
Sometimes he rode me on his back  
Dipping and rising to his plod. 16

I wanted to grow up and plough  
To close one eye, stiffen my arm.  
All I ever did was follow  
In his broad shadow round the farm. 20

I was a nuisance, tripping, falling,  
Yapping always. But today  
It is my father who keeps stumbling  
Behind me, and will not go away. 24

 You should aim to spend approximately 30 minutes on each Section.

## **Section A**

**Read the poem by Seamus Heaney and answer all of the following questions.**

1. What occupation did the speaker's father used to have? 1 mark
2. Find three examples (quotations or bits from the poem) to show that the speaker is proud of what his father used to be. 3 marks
3. Identify a SIMILE and explain its effect. 2 marks
4. How does the poet feel at the end of the last stanza [verse]? Support your answer with evidence. 4 marks
5. Explain how Seamus Heaney explains his feelings about his father. (Comment on the poem's language, style and tone, including evidence from the poem) 10 marks

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[20]

## **Section B**

*This section is a writing task of original work. It assesses your ability to convey ideas clearly in written form. Punctuation, content, creativity, construction, paragraphs, grammar, spelling and relevance to the task are all assessed.*

**Choose ONE of the following options to be the title of your story and compose an imaginative and engaging piece of writing accordingly:**

- The Lost Treasure...
- The Worst Day of my Life...
- Welcome to the Jungle...
- I Hate it When That Happens...

[20]

Total Marks [40]

# MATHEMATICS ENTRANCE EXAMINATION 2011

**DURATION: 1 HOUR**



**Name:**

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Try to answer as many questions as possible.  
Write the **answers** in the **spaces provided** and do  
not rub out any working.

If you get stuck on a question leave it and come  
back later if you have time.

## Instructions

### Answers



This means write down your answer or show your working and write down your answer.

### Calculators

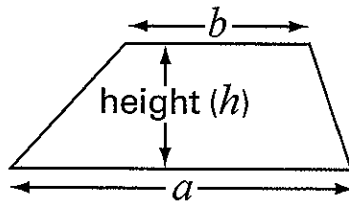


You **must not** use a calculator to answer any question in this test.

## Formulae

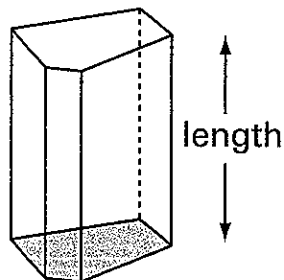
You might need to use these formulae

### Trapezium



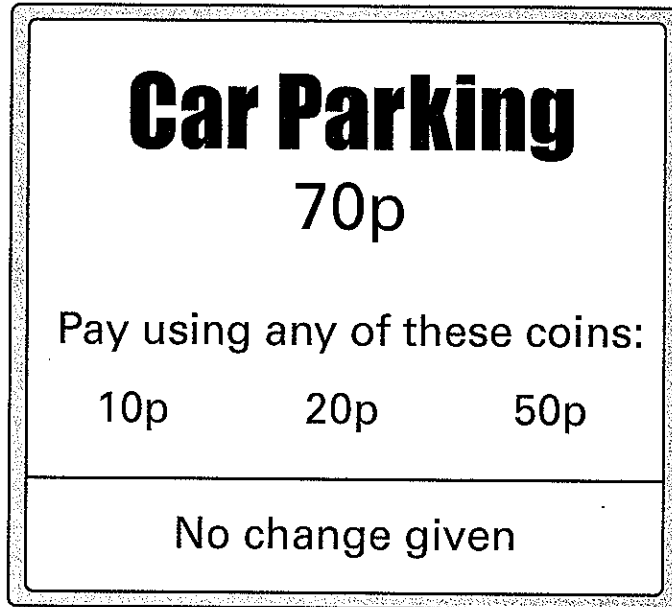
$$\text{Area} = \frac{1}{2}(a + b)h$$

### Prism



$$\text{Volume} = \text{area of cross-section} \times \text{length}$$

1. A car park shows this sign.



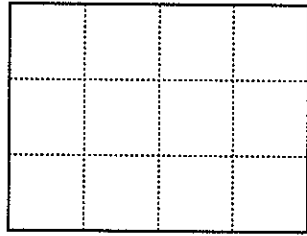
Complete the table to show all the **different ways** of paying **exactly 70p**.

Number of 10p coins	Number of 20p coins	Number of 50p coins
7	0	0

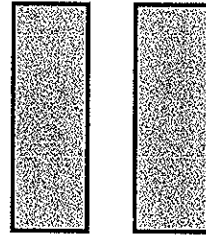


.....  
.....  
2 marks

2. I have a square grid and two rectangles.

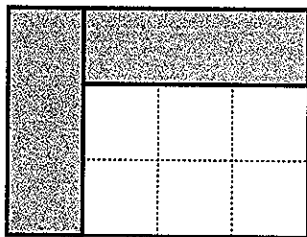


grid



two rectangles

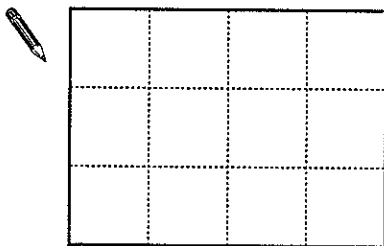
I make a pattern with the grid and the two rectangles:



The pattern has **no** lines of symmetry.

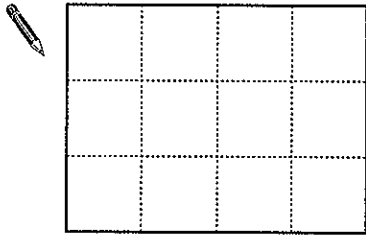
(a) Put both rectangles on the grid to make a pattern with **only one** line of symmetry.

You must **shade** the rectangles.



(b) Put both rectangles on the grid to make a pattern with **rotation** symmetry of **order 2**

You must **shade** the rectangles.



.....  
1 mark

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3. Simplify these expressions.



$$5k + 7 + 3k = \dots\dots\dots$$

.....  
1 mark

$$k + 1 + k + 4 = \dots\dots\dots$$

.....  
1 mark

4. Fill in the missing numbers.



$$\frac{1}{2} \text{ of } 20 = \frac{1}{4} \text{ of } \dots\dots\dots$$

.....  
1 mark

$$\frac{3}{4} \text{ of } 100 = \frac{1}{2} \text{ of } \dots\dots\dots$$

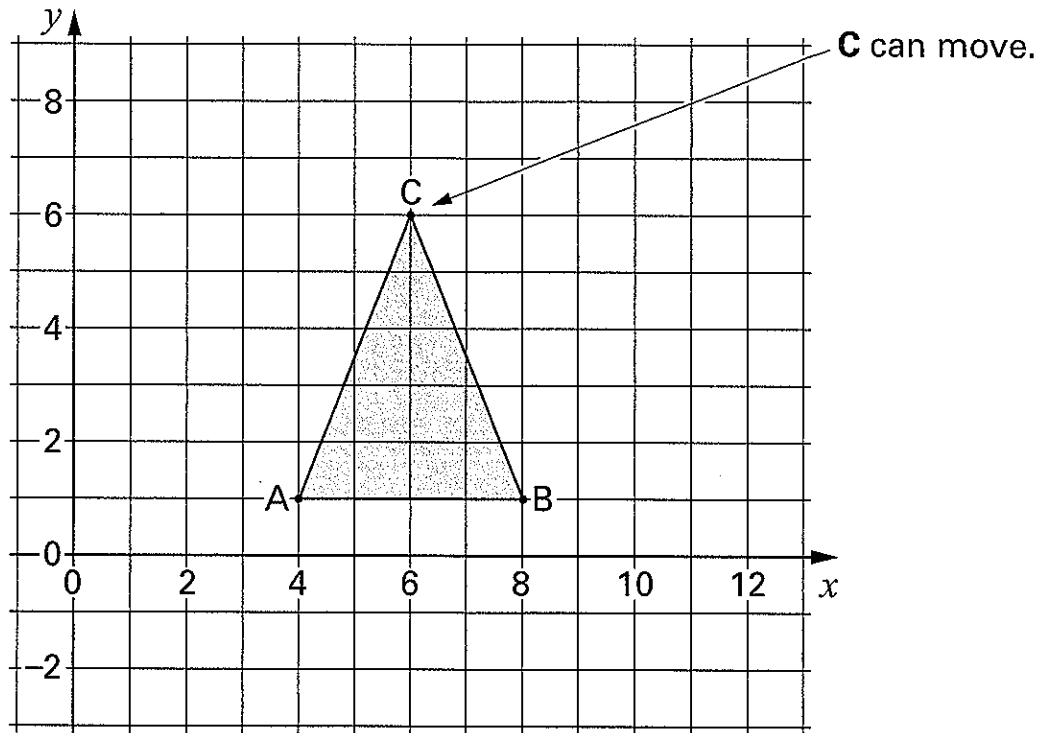
.....  
1 mark

$$\frac{1}{3} \text{ of } 60 = \frac{2}{3} \text{ of } \dots\dots\dots$$

.....  
1 mark



5. On this square grid, **A** and **B** must not move.



When C is at (6, 6), triangle ABC is **isosceles**.

(a) C moves so that triangle ABC is still **isosceles**.

Where could C have moved to?

Write the coordinates of its new position.



(.....,.....)

.....  
1 mark

(b) Then C moves so that triangle ABC is **isosceles and right-angled**.

Where could C have moved to?

Write the coordinates of its new position.



(.....,.....)

.....  
1 mark

6. (a) There are four people in Sita's family.

Their shoe sizes are 4, 5, 7 and 10

What is the **median** shoe size in Sita's family?



.....

1 mark

(b) There are **three** people in John's family.

The **range** of their shoe sizes is **4**

Two people in the family wear shoe size 6

John's shoe size is **not 6** and it is **not 10**

What is John's shoe size?



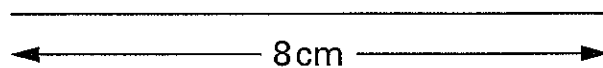
.....

1 mark

7. Use compasses to construct a triangle that has sides **8cm**, **6cm** and **7cm**.

Leave in your construction lines.

One side of the triangle is drawn for you.



.....

.....  
2 marks

8. (a) I pay **£16.20** to travel to work each week.

I work for **45 weeks** each year.

How much do I pay to travel to work each year?

Show your working.



.....  
.....  
2 marks

(b) I could buy one season ticket that would let me travel for **all 45 weeks**.

It would cost **£630**

How much is that per week?



.....  
1 mark

9. Solve these equations.

Show your working.



$$8k - 1 = 15$$

$$k = \dots\dots\dots$$

.....  
1 mark

$$2m + 5 = 10$$

$$m = \dots\dots\dots$$

.....  
1 mark

$$3t + 4 = t + 13$$

$$t = \dots\dots\dots$$

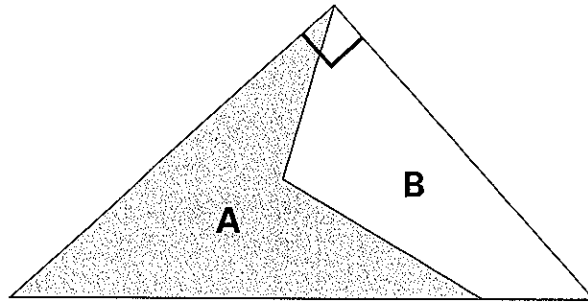
.....  
.....  
2 marks

$$2(3n + 7) = 8$$

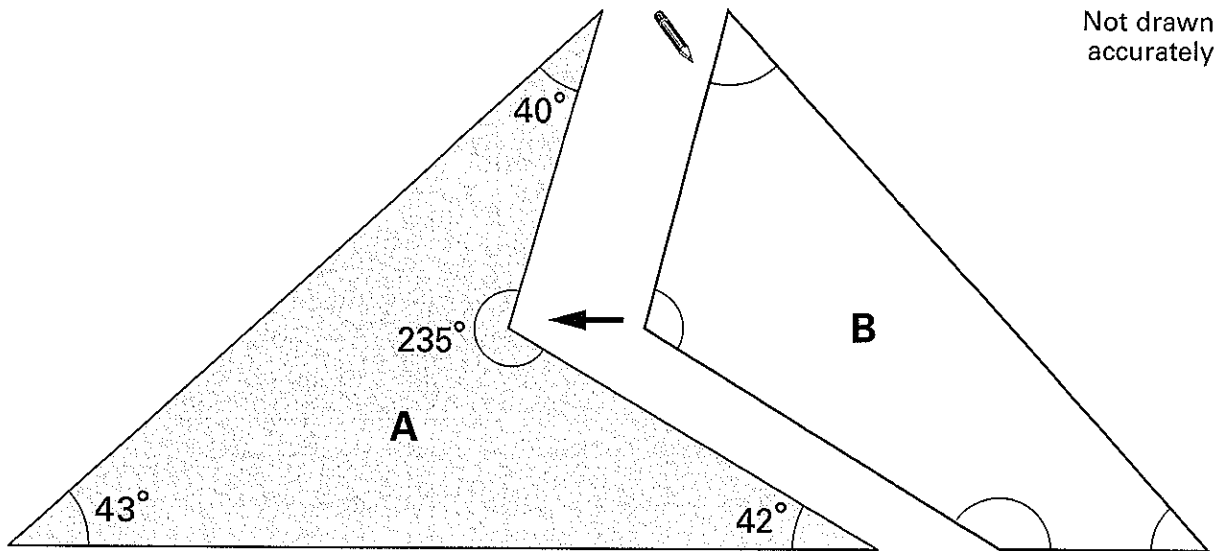
$$n = \dots\dots\dots$$

.....  
1 mark

10. The drawing shows how shapes A and B fit together to make a **right-angled** triangle.



Work out the size of each of the angles in shape B.  
Write them in the correct place in shape B below.



Not drawn accurately

.....  
.....  
.....  
3 marks

11. (a) Add  $\frac{6}{10}$  and  $\frac{6}{5}$



.....

.....  
1 mark

Now use an arrow ( $\downarrow$ ) to show the result on the number line.



.....  
1 mark

(b) How many **sixths** are there in  $3\frac{1}{3}$ ?



.....

.....  
1 mark

(c) Work out  $3\frac{1}{3} \div \frac{5}{6}$

Show your working.

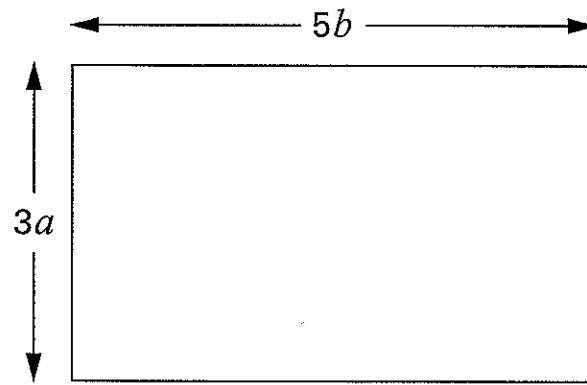


.....

.....  
2 marks

12. (a) The diagram shows a rectangle.

Its dimensions are  $3a$  by  $5b$



Write **simplified expressions** for the area and the perimeter of this rectangle.



Area: .....

.....  
1 mark

Perimeter: .....

.....  
1 mark

(b) A different rectangle has **area  $12a^2$**  and **perimeter  $14a$**

What are the dimensions of this rectangle?

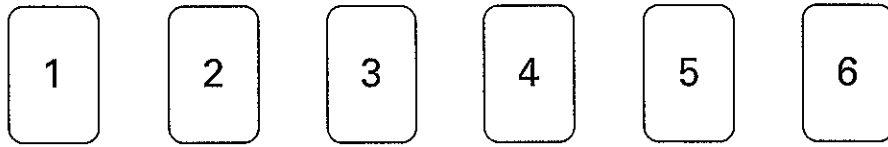


Dimensions: ..... by .....

.....  
1 mark



13. Here are six number cards.



(a) Arrange these six cards to make the calculations below.

The first one is done for you.

$$939 = \begin{array}{|c|c|c|} \hline 4 & 2 & 3 \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline 5 & 1 & 6 \\ \hline \end{array}$$



$$1164 = \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array}$$

1 mark

$$750 = \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} + \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array}$$

1 mark

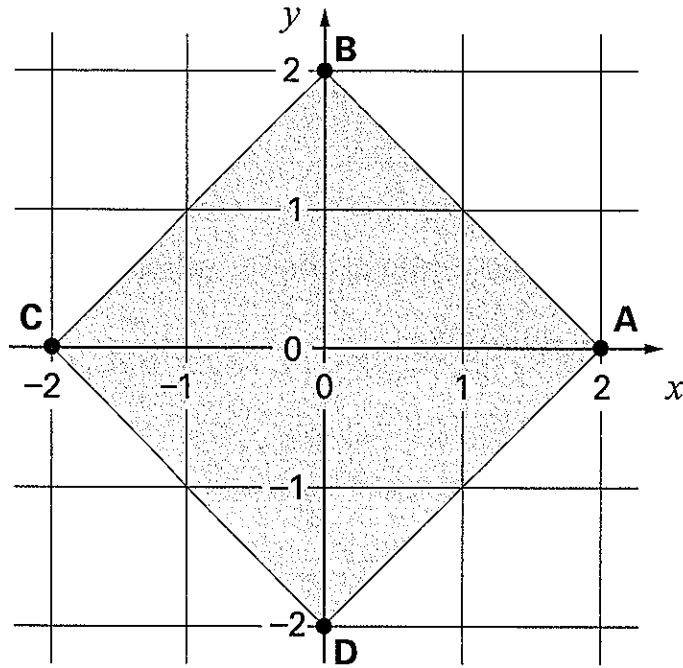
(b) Now arrange the six cards to make a **difference** of 115



$$115 = \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} - \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array}$$

1 mark

14. The diagram shows a square drawn on a square grid.



(a) The points A, B, C and D are at the vertices of the square.

Match the correct line to each equation.

One is done for you.



$y = 0$

Line through C and D

Line through A and C

$x = 0$

Line through A and D

$x + y = 2$

Line through B and D

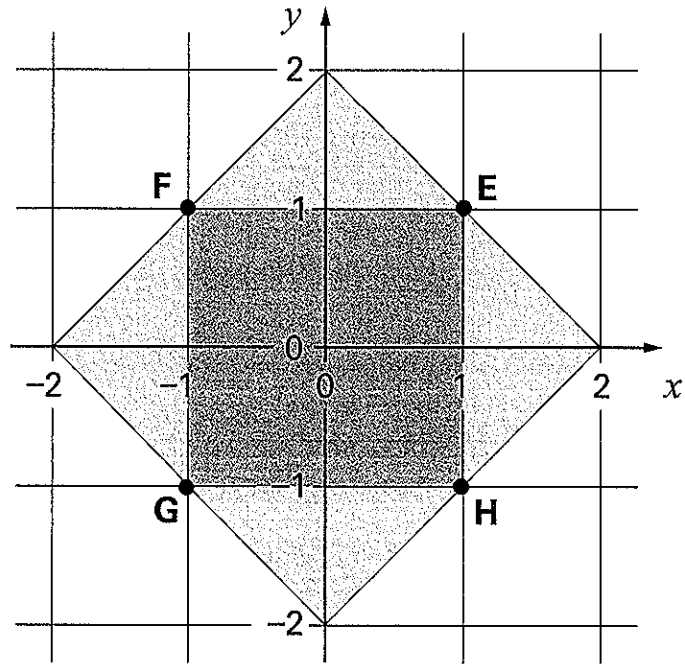
Line through B and C

$x + y = -2$

Line through A and B

2 marks

The mid-points of each side, E, F, G and H, join to make a different square.



(b) Write the equation of the straight line through **E** and **H**.



1 mark

(c) Is  $y = -x$  the equation of the straight line through **E** and **G**?

Tick (✓) Yes or No.



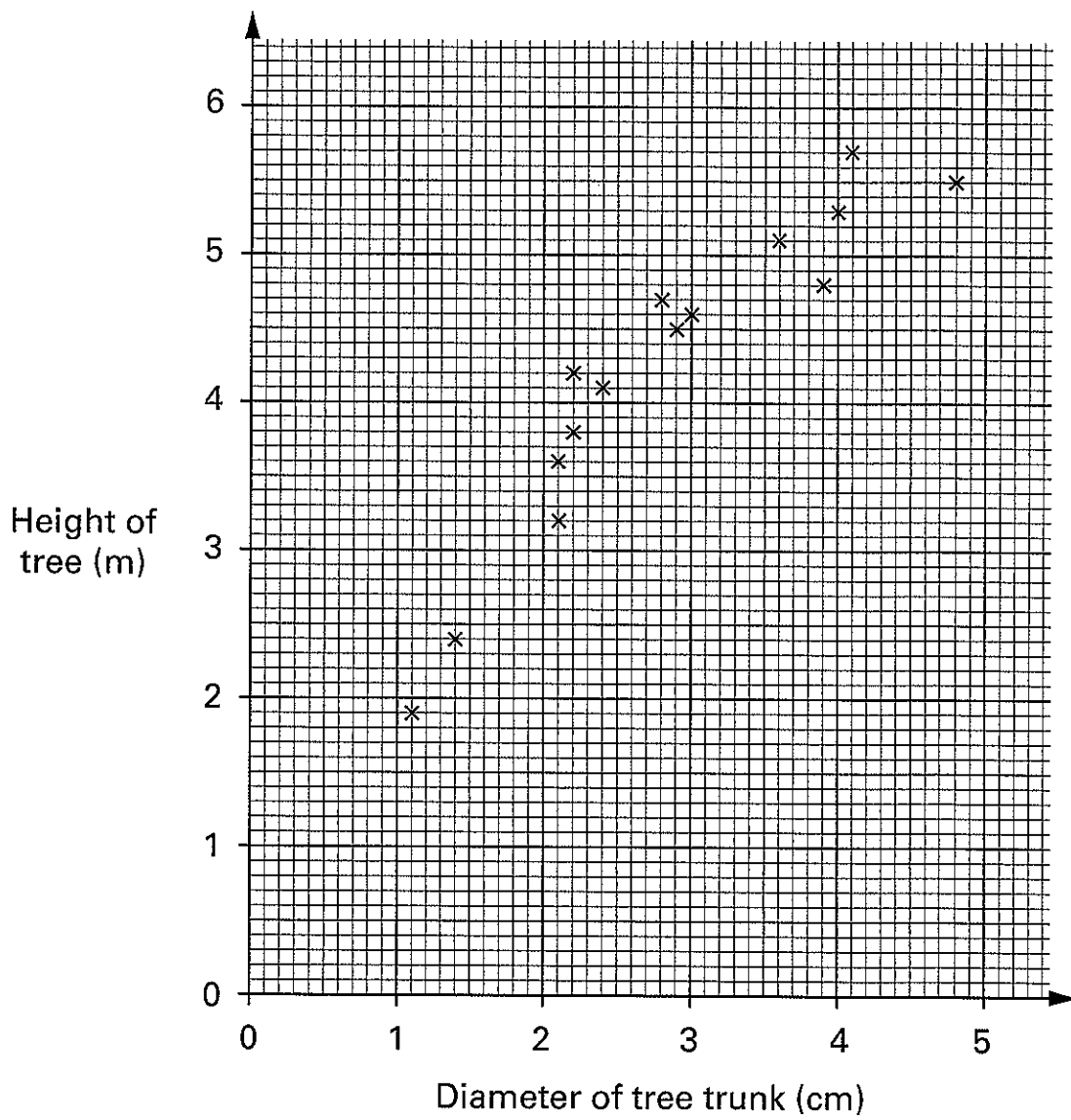
Yes  No

Explain how you know.



1 mark

15. The scatter graph shows information about trees called poplars.



- (a) What does the scatter graph show about the **relationship** between the diameter of the tree trunk and the height of the tree?



- (b) The height of a different tree is 3m. The diameter of its trunk is 5cm.  
Use the graph to explain why this tree is **not** likely to be a poplar.



.....  
1 mark

- (c) Another tree **is** a poplar. The diameter of its trunk is 3.2 cm.  
Estimate the height of this tree.



..... m

.....  
1 mark

- (d) Below are some statements about drawing lines of best fit  
on scatter graphs.

For each statement, tick (✓) to show whether the statement is True or False.

Lines of best fit must **always** ...



go through the origin.

True

False

have a positive gradient.

True

False

join the smallest and the largest values.

True

False

pass through every point on the graph.

True

False

.....  
2 marks

18. (a) Pupils started to solve the equation  $6x + 8 = 4x + 11$  in different ways.

For each statement below, tick (✓) True or False.



$6x + 8 = 4x + 11$   
so  $14x = 15x$

True     False

$6x + 8 = 4x + 11$   
so  $6x + 4x = 11 + 8$

True     False

$6x + 8 = 4x + 11$   
so  $6x = 4x + 3$

True     False

$6x + 8 = 4x + 11$   
so  $2x + 8 = 11$

True     False

$6x + 8 = 4x + 11$   
so  $2x = 3$

True     False

$6x + 8 = 4x + 11$   
so  $-3 = -2x$

True     False

...  
...  
...  
3 marks

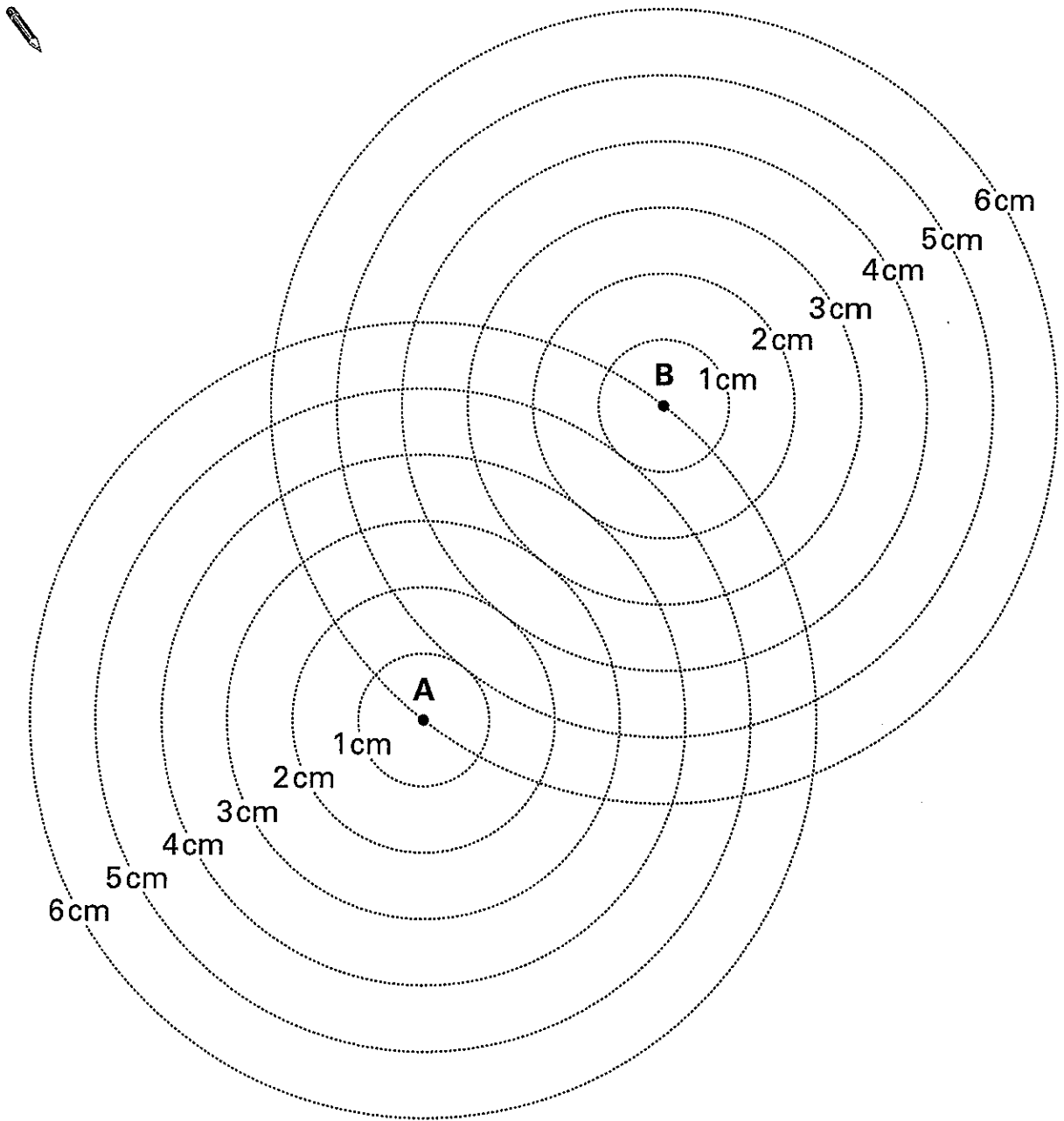
(b) A different pupil used trial and improvement to solve the equation  $6x + 8 = 4x + 11$

Explain why trial and improvement is not a good method to use.



...  
...  
1 mark

19. The diagram below shows two points A and B that are 6cm apart. Around each point are six circles of radius 1cm, 2cm, 3cm, 4cm, 5cm and 6cm. Each circle has either A or B as its centre.



- (a) On the diagram, mark with a cross any points that are 4cm away from A **and** 4cm away from B.
- (b) Now draw the locus of **all** points that are the **same distance** from A as they are from B.

.....  
1 mark

.....  
1 mark

20. For each part of the question, tick (✓) the statement that is true.

(a)

When  $x$  is even,  
 $(x - 2)^2$  is even

When  $x$  is even,  
 $(x - 2)^2$  is odd



Show how you know it is true for **all** even values of  $x$



1 mark

(b)

When  $x$  is even,  
 $(x - 1)(x + 1)$  is even

When  $x$  is even,  
 $(x - 1)(x + 1)$  is odd



Show how you know it is true for **all** even values of  $x$



1 mark