

Candidate forename		Candidate surname	
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Centre number						Candidate number				
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**OXFORD CAMBRIDGE AND RSA EXAMINATIONS  
GCSE**

**B274A**

**MATHEMATICS C  
(GRADUATED ASSESSMENT)**

**MODULE M4 – SECTION A**

**MONDAY 16 JANUARY 2012: Morning**

**DURATION: 30 minutes**

**SUITABLE FOR VISUALLY IMPAIRED CANDIDATES**

**Candidates answer on the Question Paper.**

**OCR SUPPLIED MATERIALS:**

**None**

**OTHER MATERIALS REQUIRED:**

**Geometrical instruments**

**Tracing paper (optional)**

**WARNING**

**No calculator can be used for  
Section A of this paper.**

**READ INSTRUCTIONS OVERLEAF**

## **INSTRUCTIONS TO CANDIDATES**

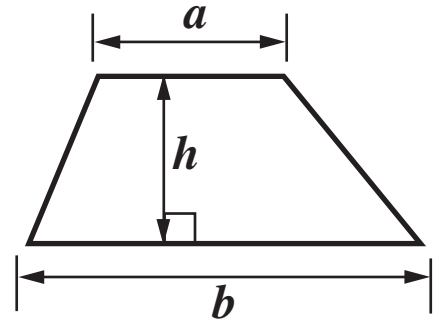
- **Write your name, centre number and candidate number in the boxes on the first page. Please write clearly and in capital letters.**
- **Use black ink. HB pencil may be used for graphs and diagrams only.**
- **Answer ALL the questions.**
- **Read each question carefully. Make sure you know what you have to do before starting your answer.**
- **Show your working. Marks may be given for a correct method even if the answer is incorrect.**
- **Write your answer to each question in the space provided. Additional paper may be used if necessary but you must clearly show your candidate number, centre number and question number(s).**

## **INFORMATION FOR CANDIDATES**

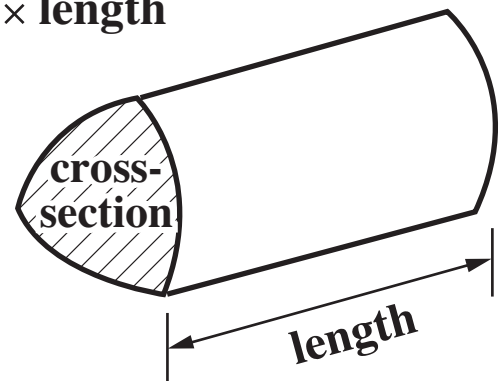
- **The number of marks is given in brackets [ ] at the end of each question or part question.**
- **The total number of marks for this Section is 25.**

## FORMULAE SHEET

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

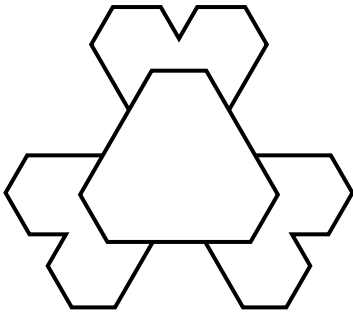


Volume of prism = (area of cross-section)  $\times$  length



**1 Snowflakes can form symmetrical shapes.  
Here are drawings of three snowflakes.**

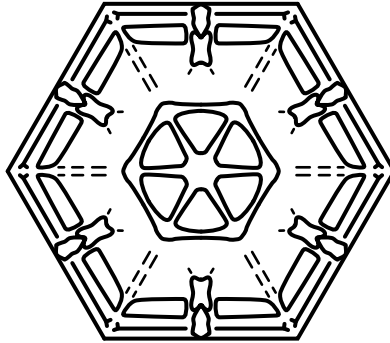
**Under each drawing write the number of lines of reflection  
and the order of rotation symmetry.**



\_\_\_\_\_ lines of  
reflection

rotation  
symmetry

order \_\_\_\_\_



\_\_\_\_\_ lines of  
reflection

rotation  
symmetry

order \_\_\_\_\_



\_\_\_\_\_ lines of  
reflection

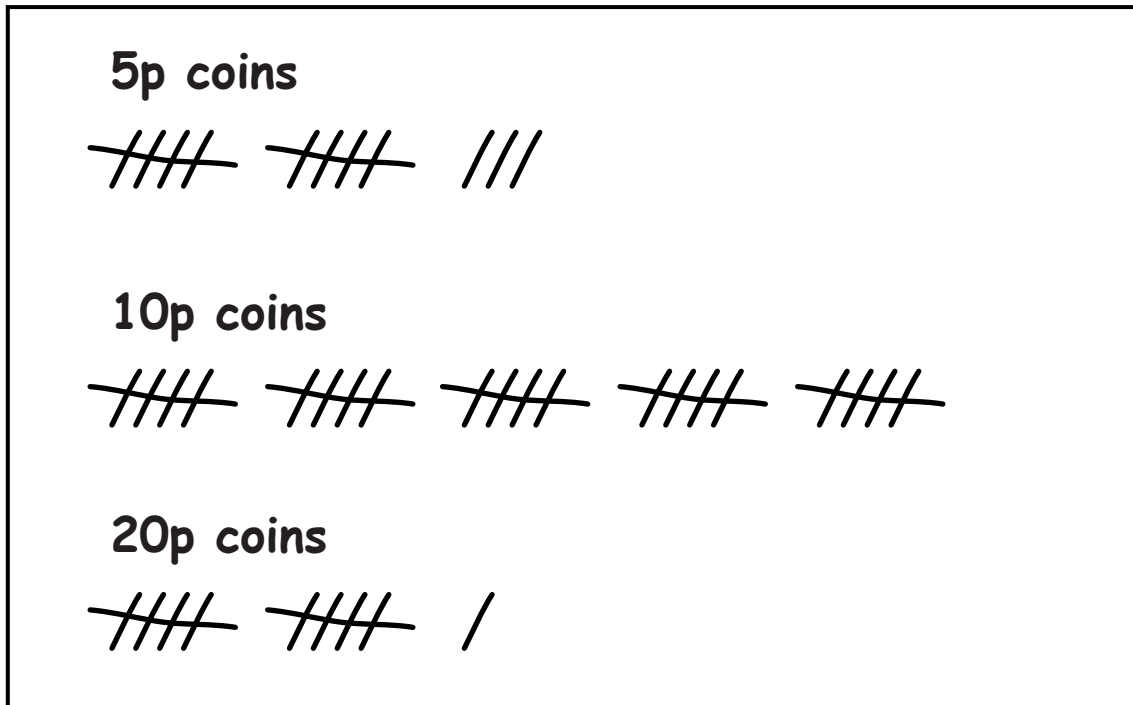
rotation  
symmetry

order \_\_\_\_\_

[4]

2 Mia saves 5p, 10p and 20p coins in a jar.  
When the jar is full she puts the money into her savings account.

(a) Here is Mia's tally of the coins saved so far.



How much MORE money must she save to have £10?

(a) £ \_\_\_\_\_ [4]

**(b) The following week, Mia has  $x$  twenty pence coins,  $y$  ten pence coins and  $z$  five pence coins in her jar.**

**(i) Write an expression for the total value, in pence, of  $x$  twenty pence coins.**

**(b)(i) \_\_\_\_\_ p [1]**

**(ii) The coins in the jar are worth  $T$  pence altogether.**

**Write a formula for  $T$  using  $x$ ,  $y$  and  $z$ .**

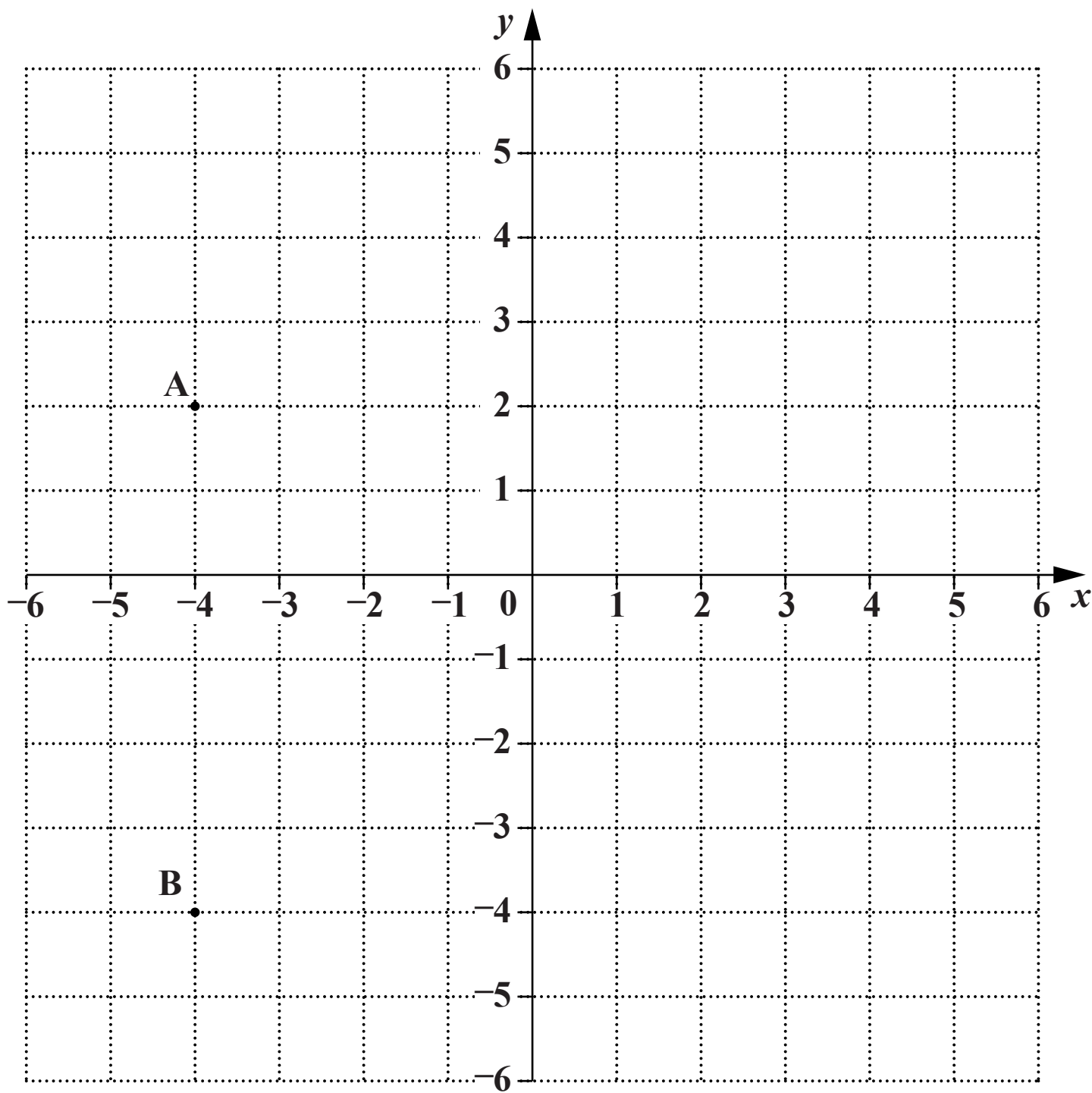
**(ii) \_\_\_\_\_ [2]**

- 3 A fifty pence coin weighs 8 g.  
Fifty pence coins are made from cupro-nickel.  
80 g of cupro-nickel is made from 60 g of copper and 20 g of nickel.**

**Find the weight of copper and the weight of nickel in a fifty pence coin.**

\_\_\_\_\_ g copper and \_\_\_\_\_ g nickel [2]

**4 Here is a coordinate grid.**





**(a) Write down the coordinates of A and B.**

**(a) A ( \_\_\_\_\_ , \_\_\_\_\_ )**

**B ( \_\_\_\_\_ , \_\_\_\_\_ )**

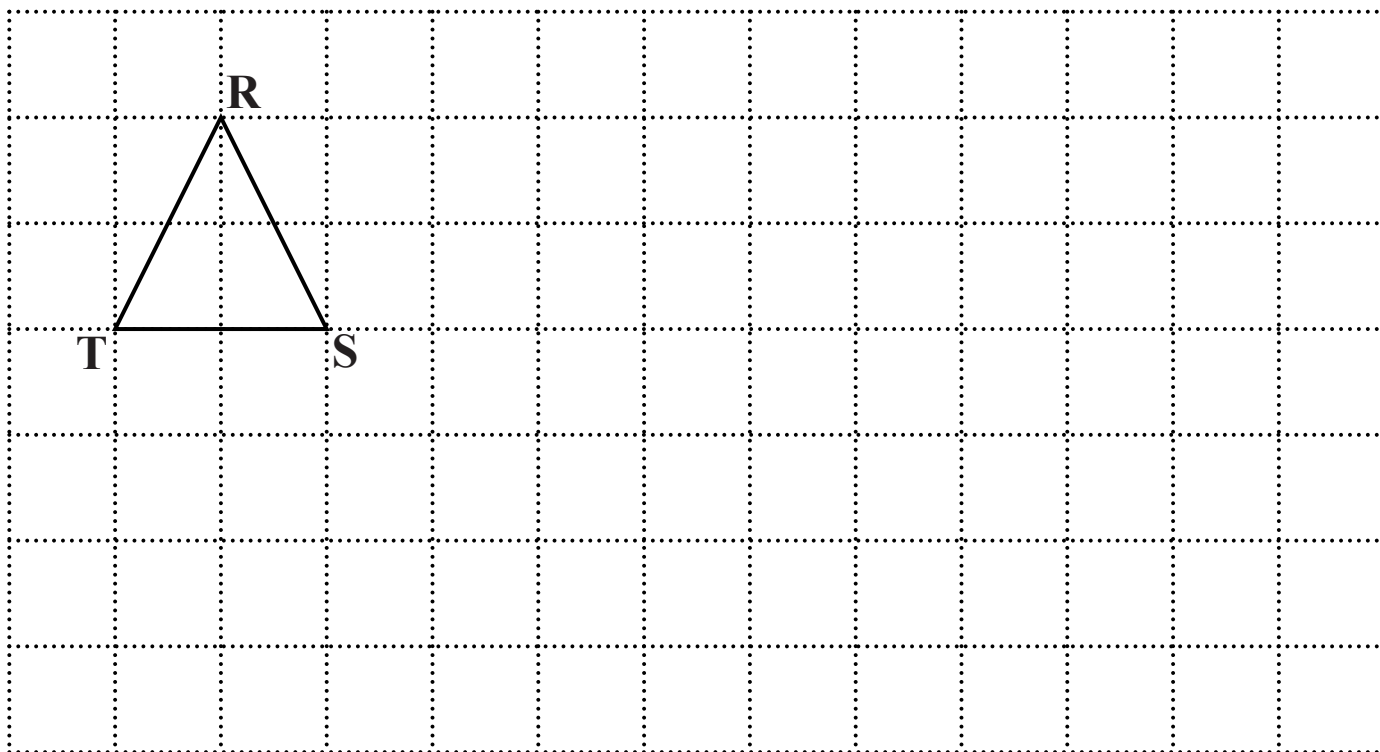
**[2]**

**(b) (i) Mark and label the point C (5, -1). [1]**

**(ii) What type of triangle is ABC?**

**(b)(ii) \_\_\_\_\_ [1]**

- 5 (a) Justin says that Triangle RST in the diagram below is an equilateral triangle.



Is Justin correct?

Support your answer with some measurements.

\_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_ [2]

- (b) On the grid above draw an angle of  $135^\circ$ .

Use the lines on the grid to help you.

[1]

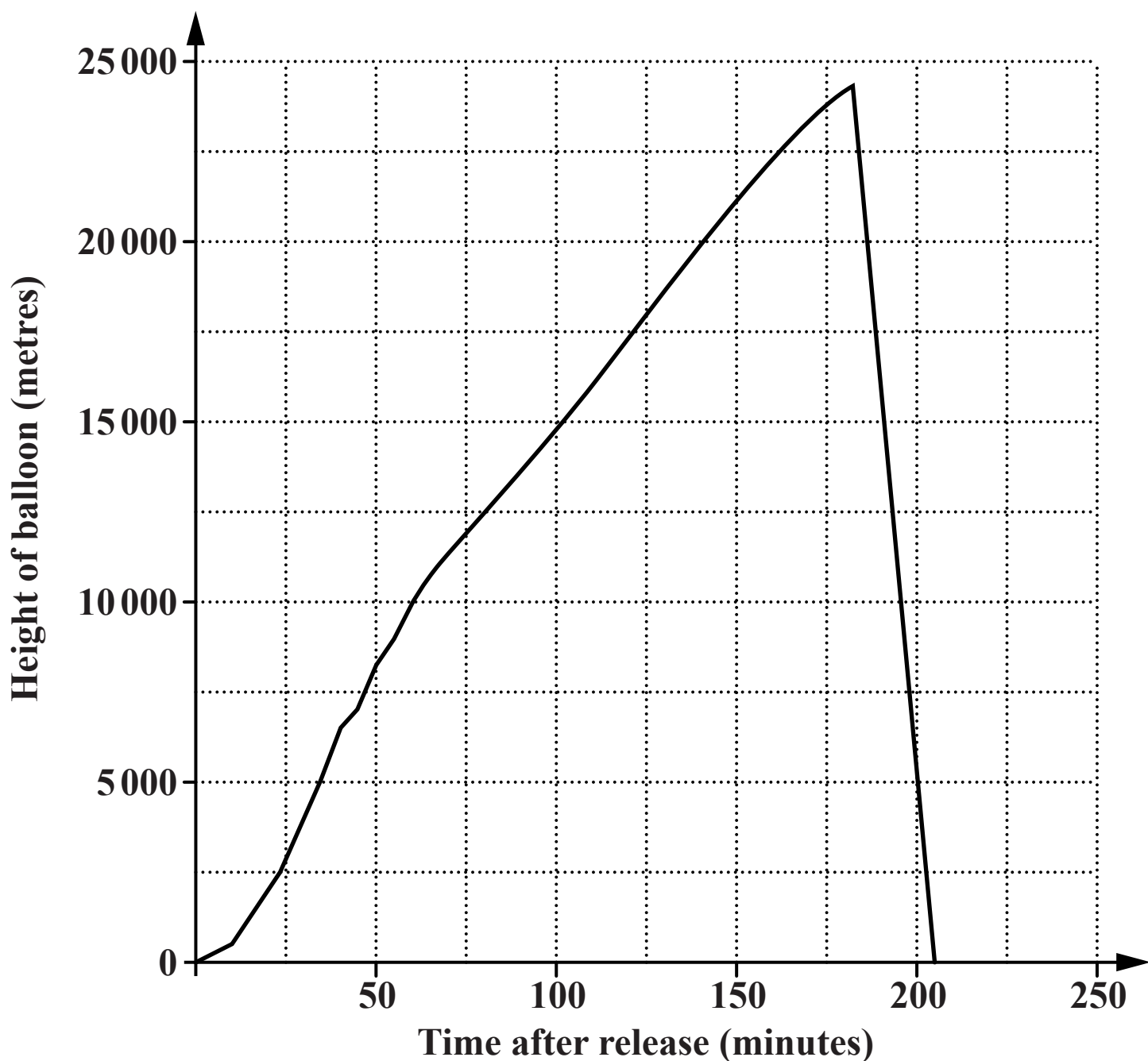
- 6 The 101 Tower in Taiwan is one of the tallest buildings in the world.  
The lifts travel the 510 m to the top of the tower in 30 seconds.**

**How far does a lift travel in one second?**

\_\_\_\_\_ m [2]

**TURN OVER FOR QUESTION 7**

- 7 This graph shows how the height of a weather balloon changed with time after release.



- (a) What was the greatest height the balloon reached?

(a) \_\_\_\_\_ m [1]

- (b) About how long did the balloon take to reach its greatest height?

(b) \_\_\_\_\_ minutes [1]

**(c) Jason says, the balloon came down faster than it went up.**

**Is Jason correct?  
Explain how you decided.**

\_\_\_\_\_ because \_\_\_\_\_

\_\_\_\_\_ [1]

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