



# Ratios (inc Scales)

## Question Paper 2

|            |  |
|------------|--|
| Level      | IGCSE                                      |
| Subject    | Maths (0580)                               |
| Exam Board | Cambridge International Examinations (CIE) |
| Paper Type | Extended                                   |
| Topic      | Number                                     |
| Sub-Topic  | Ratios (inc Scales)                        |
| Booklet    | Question Paper 2                           |

**Time Allowed:** 64 minutes

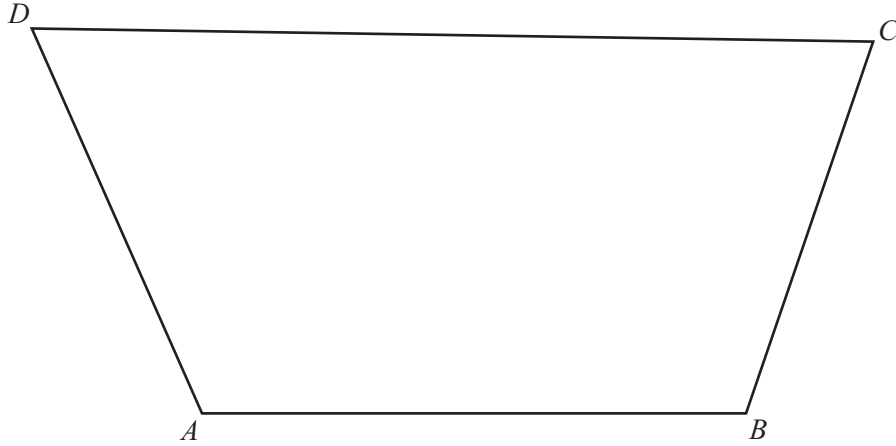
**Score:** /53

**Percentage:** /100

**Grade Boundaries:**

| A*   | A   | B   | C   | D   | E   | U    |
|------|-----|-----|-----|-----|-----|------|
| >85% | 75% | 60% | 45% | 35% | 25% | <25% |

- 1 The diagram shows the plan,  $ABCD$ , of a park.  
The scale is 1 centimetre represents 20 metres.



Scale: 1 cm to 20 m

- (a) Find the actual distance  $BC$ .

*Answer(a)* ..... m [2]

- (b) A fountain,  $F$ , is to be placed

- 160 m from  $C$
- and
- equidistant from  $AB$  and  $AD$ .

On the diagram, **using a ruler and compasses only**, construct and mark the position of  $F$ .  
Leave in all your construction lines.

[5]

- 2 (a) Alfonso has \$75 to spend on the internet.  
He spends some of the money on music, films and books.

- (i) The money he spends on music, films and books is in the ratio

$$\text{music : films : books} = 5 : 3 : 7.$$

He spends \$16.50 on music.

Calculate the **total** amount he spends on music, films and books.

Answer(a)(i) \$ ..... [3]

- (ii) Find this total amount as a percentage of the \$75.

Answer(a)(ii) ..... % [1]

- (b) The download times for the music, films and books are in the ratio

$$\text{music : films : books} = 2 : 9 : 1.$$

The **total** download time is 3 hours and 33 minutes.

Calculate the download time for the films.

Give your answer in hours, minutes and seconds.

Answer(b) ..... hours ..... minutes ..... seconds [3]

- (c) The cost of \$16.50 for the music was a reduction of 12% on the original cost.

Calculate the original cost of the music.

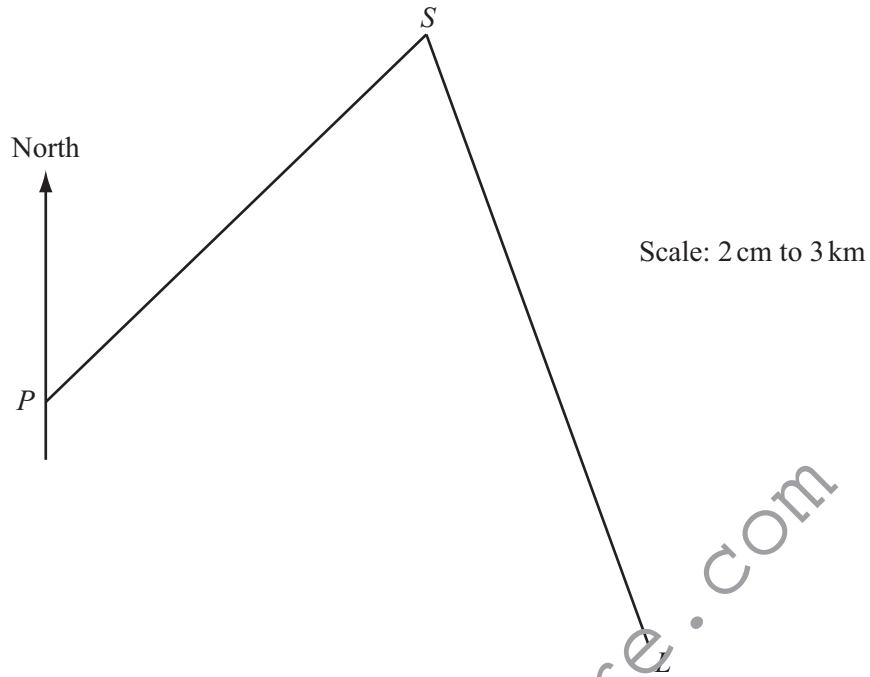
Answer(c) \$ ..... [3]

- 3 Hans draws a plan of a field using a scale of 1 centimetre to represent 15 metres.  
The actual area of the field is  $10\,800\text{ m}^2$ .

Calculate the area of the field on the plan.

*Answer* .....  $\text{cm}^2$  [2]

4



In the scale drawing,  $P$  is a port,  $L$  is a lighthouse and  $S$  is a ship.  
The scale is 2 centimetres represents 3 kilometres.

(a) Measure the bearing of  $S$  from  $P$ .

Answer(a) ..... [1]

(b) Find the actual distance of  $S$  from  $L$ .

Answer(b) ..... km [2]

(c) The bearing of  $L$  from  $S$  is  $160^\circ$ .

Calculate the bearing of  $S$  from  $L$ .

Answer(c) ..... [1]

(d) Work out the scale of the map in the form  $1:n$ .

*Answer(d)* 1: ..... [2]

(e) A boat  $B$  is

- equidistant from  $S$  and  $L$
- and
- equidistant from the lines  $PS$  and  $SL$ .

On the diagram, **using a straight edge and compasses only**, construct the position of  $B$ . [5]

(f) The lighthouse stands on an island of area  $1.5 \text{ cm}^2$  on the scale drawing.

Work out the actual area of the island.

*Answer(f)* .....  $\text{km}^2$  [2]

5 The volume of a child's model plane is  $1200 \text{ cm}^3$ .  
The volume of the full size plane is  $4050 \text{ m}^3$ .

Find the scale of the model in the form  $1:n$ .

*Answer* 1: ..... [3]

- 6 (a) (i) In a camera magazine, 63 pages are used for adverts.  
The ratio number of pages of adverts : number of pages of reviews = 7 : 5 .

Calculate the number of pages used for reviews.

Answer(a)(i) ..... [2]

- (ii) In another copy of the magazine, 56 pages are used for reviews and for photographs.  
The ratio number of pages of reviews : number of pages of photographs = 9 : 5 .

Calculate the number of pages used for photographs.

Answer(a)(ii) ..... [2]

- (iii) One copy of the magazine costs \$4.90 .  
An annual subscription costs \$48.80 for 13 copies.

Calculate the percentage discount by having an annual subscription.

Answer(a)(iii) ..... % [3]

- (b) In a car magazine, 25% of the pages are used for selling second-hand cars,  $62\frac{1}{2}\%$  of the **remaining** pages are used for features, and the other 36 pages are used for reviews.

Work out the total number of pages in the magazine.

*Answer(b)* ..... [4]

- 7 Pedro and Eva do their homework.

Pedro takes 84 minutes to do his homework.

The ratio Pedro's time : Eva's time = 7 : 6.

Work out the number of minutes Eva takes to do her homework.

*Answer* ..... min [2]



8 Jamie needs 300 g of flour to make 20 cakes.

How much flour does he need to make 12 cakes?

*Answer* ..... g [2]

9 A model of a ship is made to a scale of 1 : 200.  
The surface area of the model is  $7500 \text{ cm}^2$ .

Calculate the surface area of the ship, giving your answer in square metres.

*Answer* .....  $\text{m}^2$  [3]