

**GCSE (9 – 1) Mathematics**  
**J560/04 Paper 4 (Higher Tier)**

**Question Set 2**

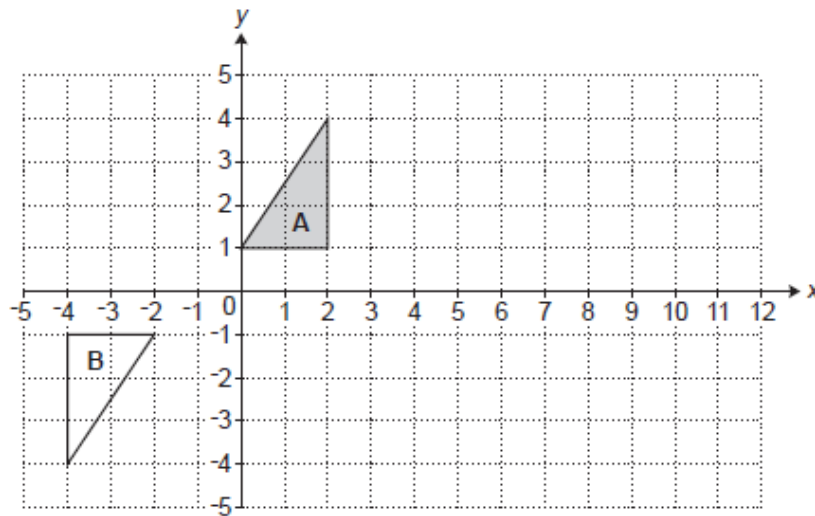
1. (a) Anne, Barry and Colin share a prize in the ratio 3 : 4 : 5.  
Colin gives  $\frac{1}{3}$  of his share to a charity.  
What fraction of the whole prize does Colin give to the charity?

(a) ..... [3]

- (b) Delia, Edwin and Freya share some money in the ratio 5 : 7 : 8.  
Freya's share is £1600.  
How much money did they share?

(b) £ ..... [2]

- 2 (a) Triangle A and triangle B are drawn on the coordinate grid.



- (a) Describe fully the **single** transformation that maps triangle A onto triangle B.

.....  
..... [3]

(b) Describe fully the **single** transformation that is equivalent to:

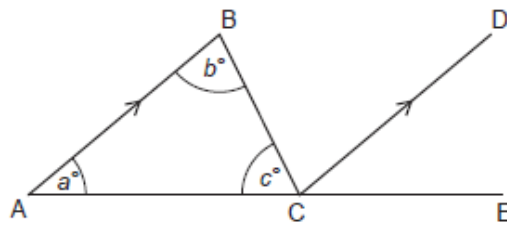
- a reflection in the line  $x = 3$ , followed by
- a translation by  $\begin{pmatrix} 4 \\ 0 \end{pmatrix}$ .

You may use the grid above to help you.

.....  
..... [3]

3 (a)

The diagram shows triangle ABC.  
CD is parallel to AB.  
A, C and E lie in a straight line.  
Angles of size  $a^\circ$ ,  $b^\circ$  and  $c^\circ$  are shown.



Not to scale

- (a) Insert  $a^\circ$ ,  $b^\circ$  or  $c^\circ$  to make this statement true.  
Give a reason for your answer.

Angle DCE = ..... because .....  
..... [2]

**(b)**

Use the diagram and the answer to part (a) to show that the angles of a triangle add up to  $180^\circ$ .  
Give a reason for each statement you make.

**[3]**

**4**

The area of a rectangle is  $56 \text{ m}^2$ , correct to the nearest  $\text{m}^2$ .  
The length of the rectangle is  $9.2 \text{ m}$ , correct to the nearest  $0.1 \text{ m}$ .

Calculate the smallest possible width of the rectangle.

..... m **[4]**

5 (a) Here are the first four terms of a sequence.

-1    4    9    14

Write an expression for the  $n$ th term of this sequence.

(a) ..... [2]

(b) The  $n$ th term of another sequence is given by

$$an^2 + bn$$

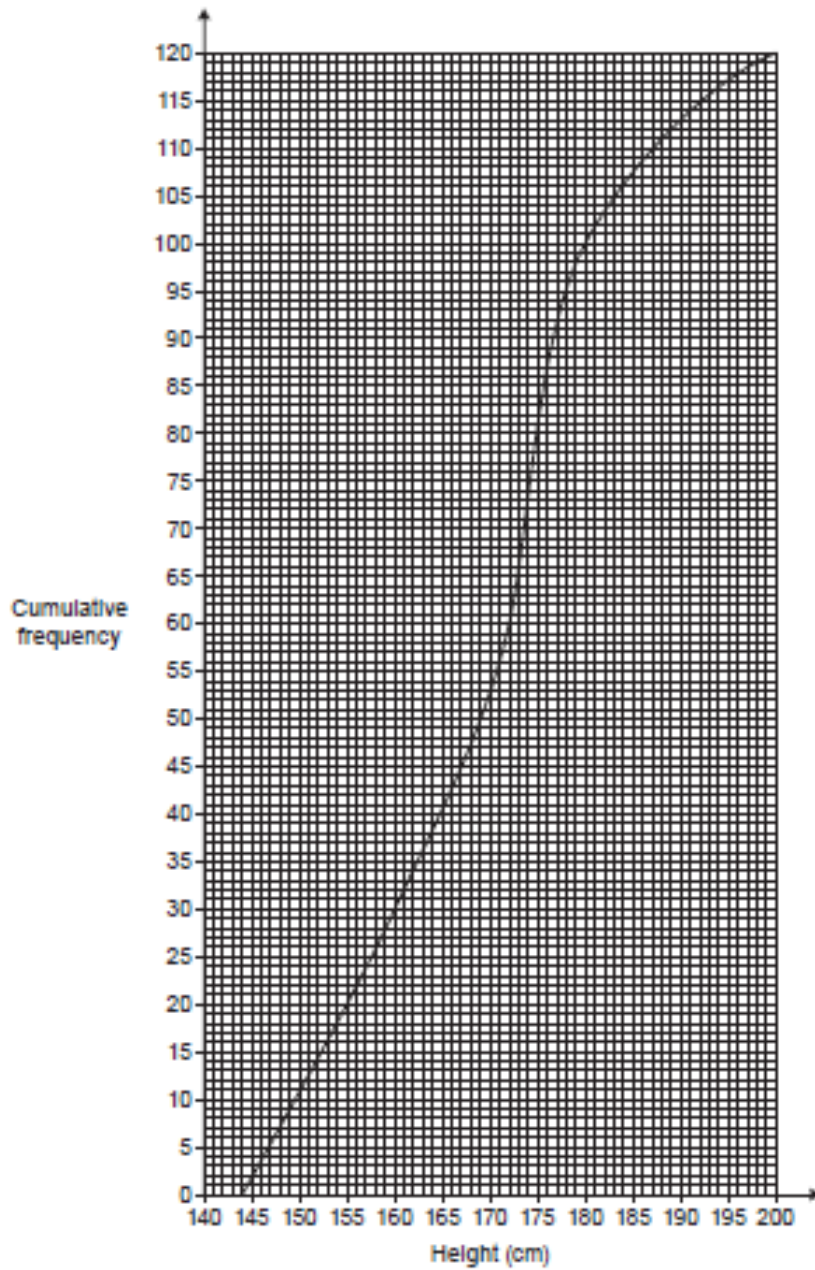
The third term is 9 and the sixth term is 126.

Find the value of  $a$  and the value of  $b$ .

(b)  $a =$  .....

$b =$  ..... [5]

- 6 (a) The cumulative frequency graph shows the distribution of the heights of members of a rowing club.



(i)

(i) Find the median.

(a)(i) ..... cm [1]

(ii) Find the interquartile range.

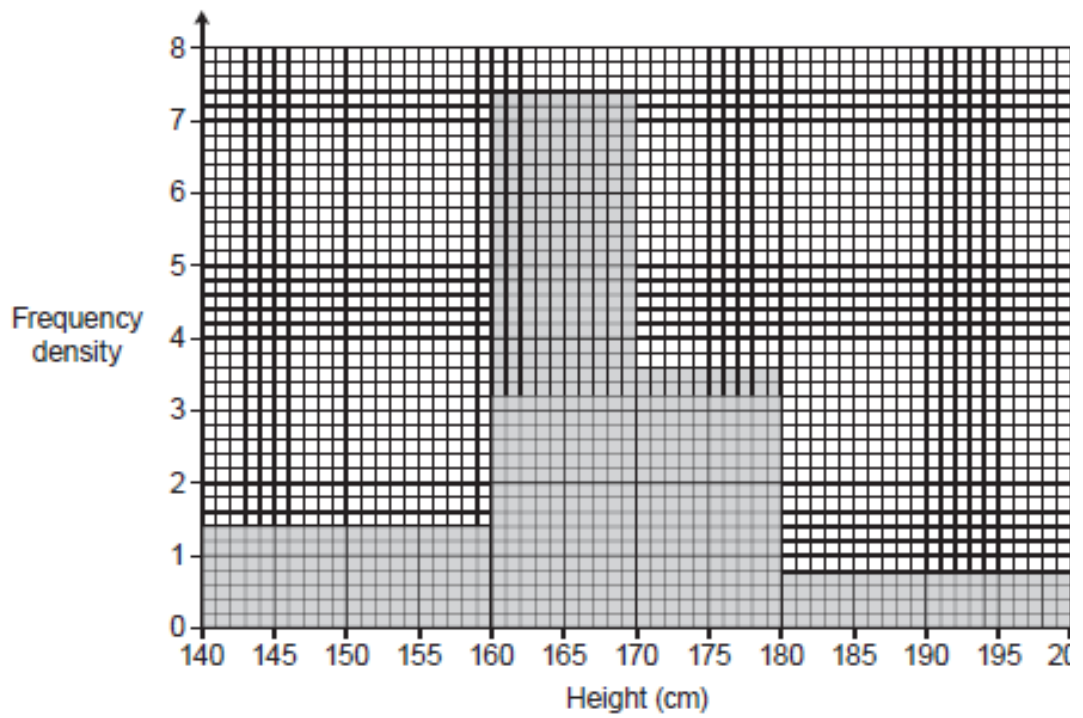
(ii) ..... cm [2]

(iii) Calculate the percentage of the members who are at least 180 cm tall.

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

(b)

) The histogram summarises the heights of the 153 members of a swimming club.

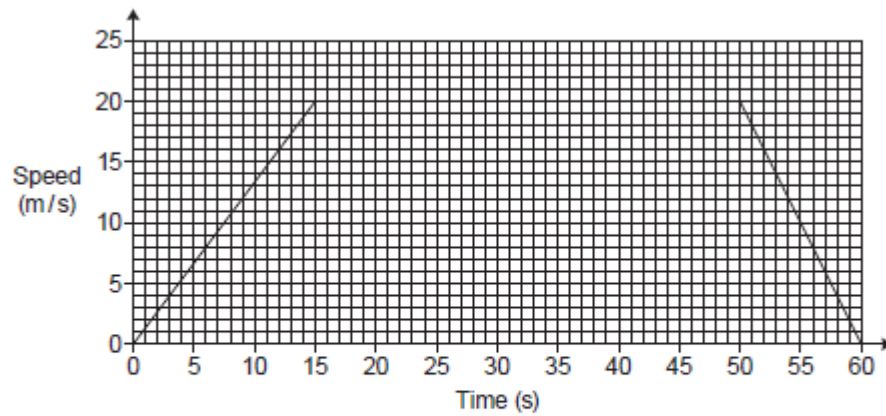


Which club has the greater median height?  
You must show all your working.

.....

7 (a)

The graph shows the speed of a train during the first 60 seconds of motion.



(a) What is the speed of the train after 9 seconds?

(a) ..... m/s [1]

(b) What does the straight line suggest about the speed of the train over the first 15 seconds?

.....  
..... [1]

(c) Work out the average speed of the train, in m/s, during the 60 seconds.

(c) ..... m/s [5]



8

Solve this equation algebraically.  
Give your solutions correct to 2 decimal places.

$$3x^2 + 8x - 5 = 0$$

$x = \dots\dots\dots$  or  $x = \dots\dots\dots$  [4]

**Total Marks for Question Set : 49**

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