Name	Class

MATHS TEACHER HUB

www.MathsTeacherHub.com

Similarity and congruence

(9 – 1) Topic booklet

Foundation

These questions have been collated from previous years GCSE Mathematics papers.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser.	Total Marks

Instructions

•Use **black** ink or ball-point pen.
•**Fill in the boxes** at the top of this page with your name, centre number and candidate number.
•Answer **all** questions.
•Answer the questions in the spaces provided
– *there may be more space than you need*.
•Diagrams are NOT accurately drawn, unless otherwise indicated.
•You must **show all your working out.**
•If the question is a **1F** question you are not allowed to use a calculator.
•If the question is a **2F** or a **3F** question, you may use a calculator to help you answer.

Information

•The marks for **each** question are shown in brackets
– *use this as a guide as to how much time to spend on each question*.

Advice

•Read each question carefully before you start to answer it.
•Keep an eye on the time.
•Try to answer every question.
•Check your answers if you have time at the end.

Answer ALL questions
Write your answers in the space provided.
You must write down all the stages in your working.

9 The smallest angle of a triangle is 25°
The triangle is enlarged by scale factor 3

Ben says,

"The smallest angle of the enlarged triangle is 75° because $25 \times 3 = 75$"

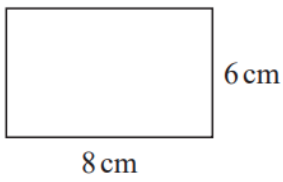
Is Ben right?
Explain your answer.

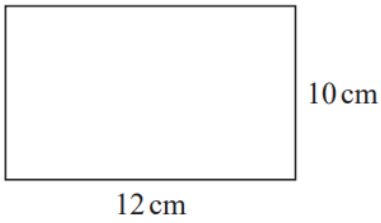
.....

.....

Specimen 2 – Paper 2F **(Total for Question 9 is 1 mark)**

16 Here are two rectangles.





Jim says,

"The two rectangles are similar because $8 + 4 = 12$ and $6 + 4 = 10$"

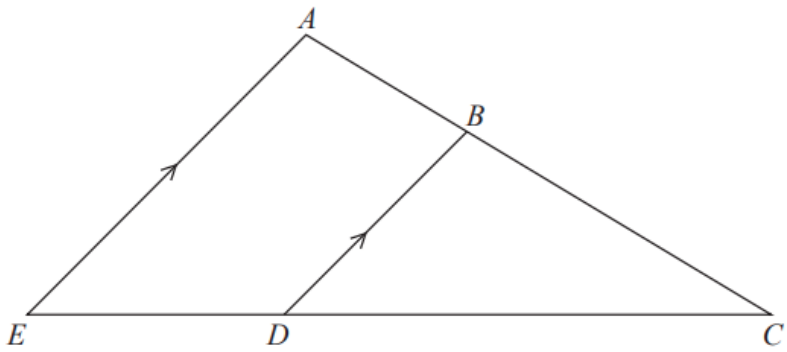
Is Jim correct?
Explain your answer.

.....

.....

November 2018 – Paper 1F **(Total for Question 16 is 1 mark)**

21



ABC and *EDC* are straight lines.
EA is parallel to *DB*.

EC = 8.1 cm.
DC = 5.4 cm.
DB = 2.6 cm.

(a) Work out the length of *AE*.

..... cm

(2)

AC = 6.15 cm.

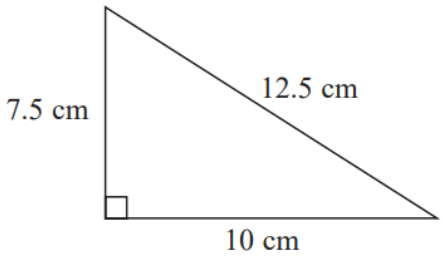
(b) Work out the length of *AB*.

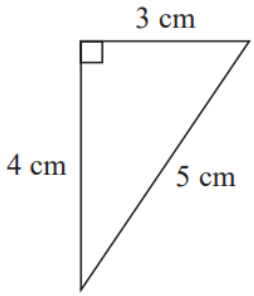
..... cm

(2)

(Total for Question 21 is 4 marks)

21

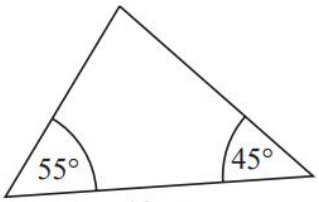




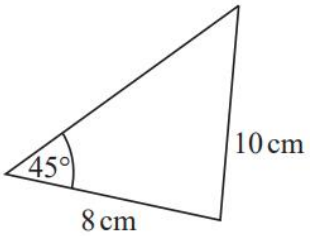
Show that these two triangles are mathematically similar.

June 2017 – Paper 3F **(Total for Question 21 is 2 marks)**

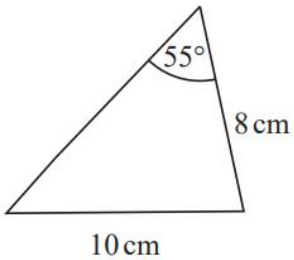
23 The diagram shows four triangles.



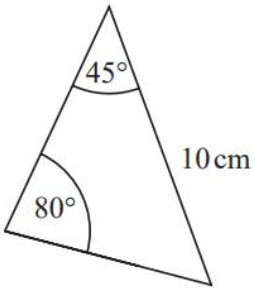
Triangle **A**



Triangle **B**



Triangle **C**



Triangle **D**

Two of these triangles are congruent.

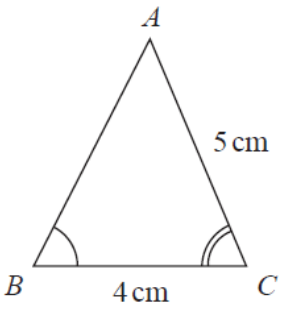
Write down the letters of these two triangles.

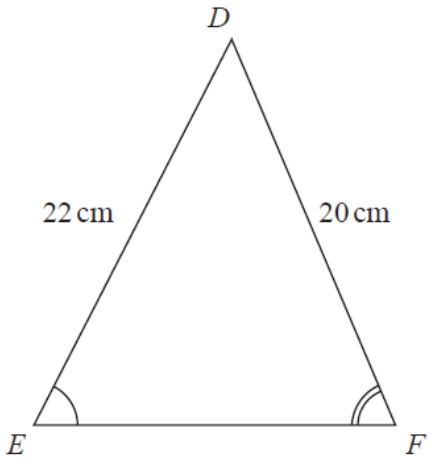
..... and .....

May 2020 – Paper 1F

(Total for Question 23 is 1 mark)

25 Triangle ABC and triangle DEF are similar.





(a) Work out the length of EF.

..... cm

(2)

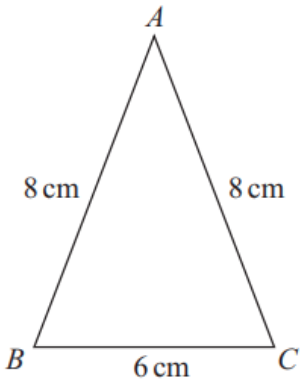
(b) Work out the length of AB.

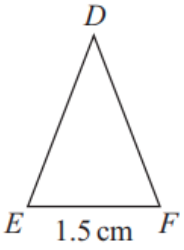
..... cm

(2)

(Total for Question 25 is 4 marks)

27 *ABC* and *DEF* are two similar isosceles triangles.





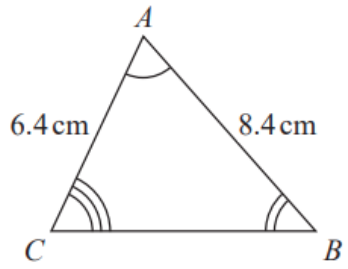
$DE = DF$

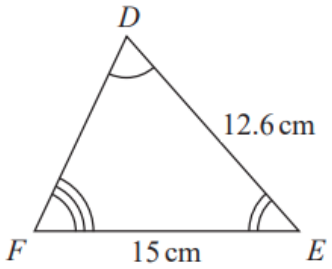
Work out the length of DE.

..... cm

(Total for Question 27 is 2 marks)

27 Triangle *ABC* and triangle *DEF* are similar.





(a) Work out the length of *DF*.

..... cm

(2)

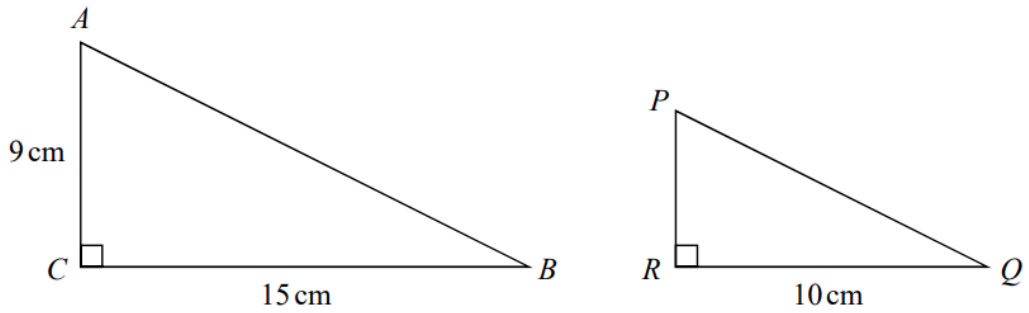
(b) Work out the length of *CB*.

..... cm

(2)

(Total for Question 27 is 4 marks)

29 *ABC* and *PQR* are similar right-angled triangles.



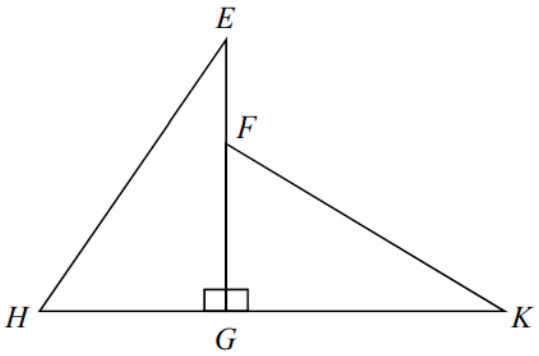
angle *ABC* = angle *PQR*

(a) Work out the length of *PR*.

..... cm

(2)

Triangle *EGH* is congruent to triangle *KGF*.



HK = 10 cm.
HG = 4 cm.

(b) Work out the length of *EF*.

..... cm

(2)

(Total for Question 29 is 4 marks)