1MA1 Higher themed papers: Angles Proof

Write your name here

Surname | Other names

Centre Number | Candidate Number

Pearson Edexcel
Level 1/Level 2 GCSE (9–1)

Mathematics

Angles Proof

Paper Reference
1MA1

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

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.*
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.

Information

- The total mark for this paper is **21**. There are **5** questions.
- Questions have been arranged in an ascending order of mean difficulty, as found by all students in the June 2017–November 2019 examinations.
- 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.

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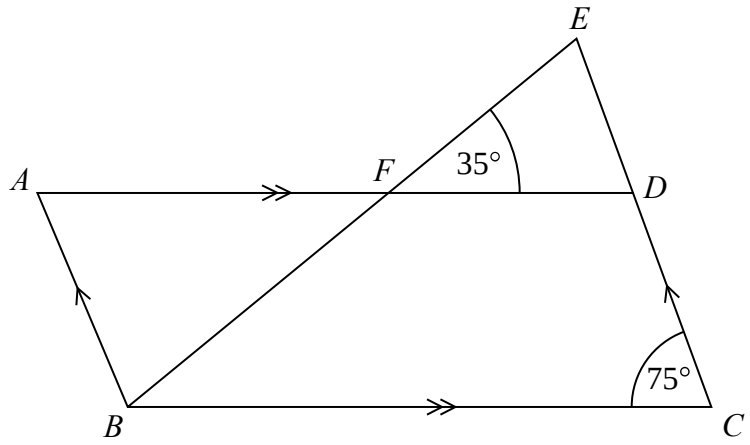
1



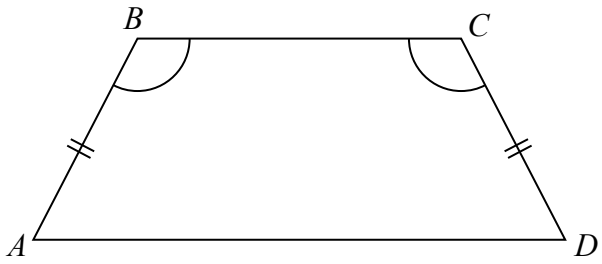
ABCD is a parallelogram.
EDC is a straight line.
F is the point on *AD* so that *BFE* is a straight line.

Angle *EFD* = 35°
Angle *DCB* = 75°

Show that angle *ABF* = 70°
Give a reason for each stage of your working.

(Total for Question 1 is 4 marks)

2 *ABCD* is a quadrilateral.

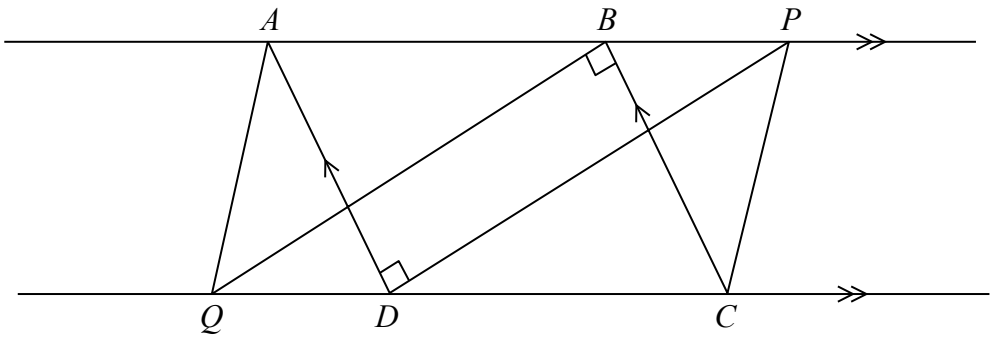


AB = *CD*.
Angle *ABC* = angle *BCD*.

Prove that *AC* = *BD*.

(Total for Question 2 is 4 marks)

3



ABCD is a parallelogram.
ABP and *QDC* are straight lines.
Angle *ADP* = angle *CBQ* = 90°

(*a*) Prove that triangle *ADP* is congruent to triangle *CBQ*.

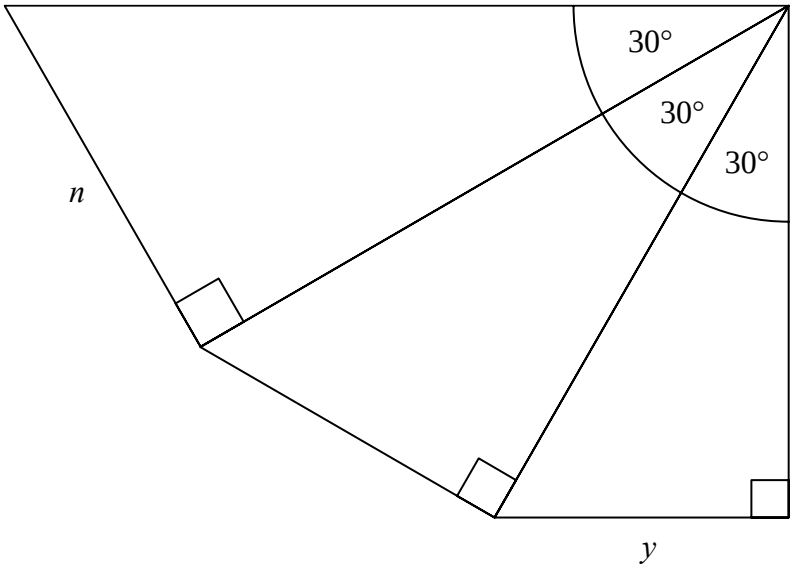
(3)

(*b*) Explain why *AQ* is parallel to *PC*.

(2)

(Total for Question 3 is 5 marks)

4

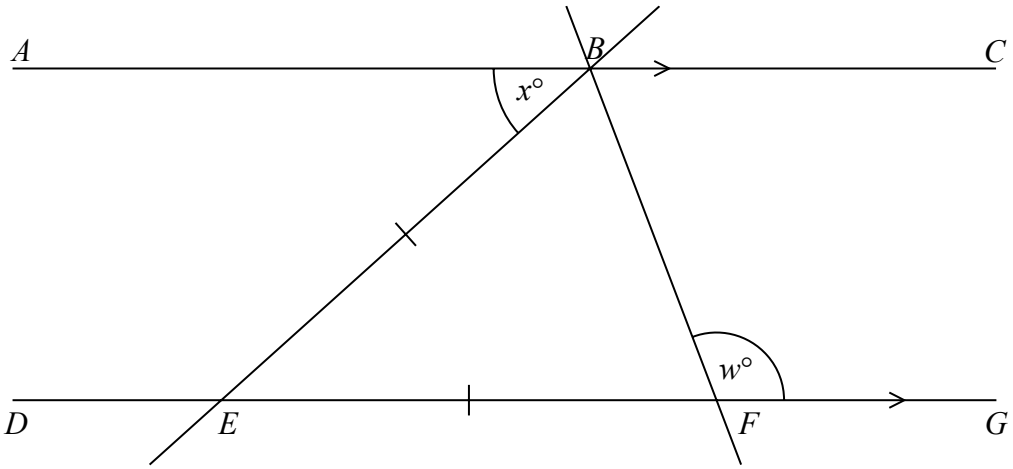


The diagram shows three right-angled triangles.

Prove that $y = \frac{3}{4}n$

(Total for Question 4 is 4 marks)

5



In the diagram *ABC* and *DEFG* are parallel lines.
Angle *ABE* = *x*°
EB = *EF*

Show that $w = 90 + \frac{1}{2}x$

Give a reason for each stage of your working.

(Total for Question 5 is 4 marks)

TOTAL MARKS FOR PAPER: 21