

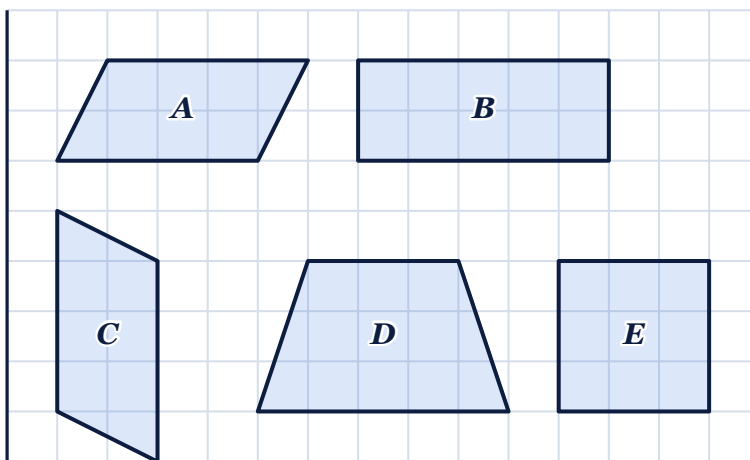


Scan for the solutions

Name: _____ **Date:** _____ **Score:** _____ / 49

1 The diagram shows five quadrilaterals, labelled A, B, C, D and E, drawn on a centimetre grid.

- Write down the letters of the pair of congruent quadrilaterals.
- Write down the mathematical name of quadrilateral A.



(2 marks)

Answer _____

2 Here is some information about four pairs of triangles.

For each pair, write down the condition (SSS, SAS, ASA or RHS) that shows the triangles are congruent, or write "not necessarily congruent".

- a. Both triangles have two sides of 5 cm and 7 cm, with an angle of 50° between them.
- b. Both triangles have angles of 40° , 60° and 80° .
- c. Both triangles have a right angle, a hypotenuse of 13 cm and another side of 5 cm.
- d. Both triangles have a side of 6 cm with angles of 35° and 70° at each end of it.

(4 marks)

Answer _____

3 $PQRS$ is a parallelogram.

Angle $P = (3x + 15)^\circ$ and angle $Q = (2x - 10)^\circ$. Angles P and Q are next to each other on the same side of the parallelogram.

Work out the value of x . Give a reason for each stage of your working.

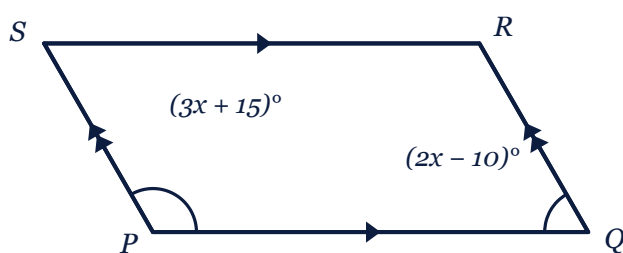


Diagram NOT accurately drawn

(3 marks)

Answer _____

4 AB and CD are parallel lines. The line PQ crosses them at P and Q.

One of the angles at P is 62° , as shown.

- Write down the value of x . Give a reason for your answer.
- Write down the value of z . Give a reason for your answer.
- Work out the value of y . Give a reason for your answer.

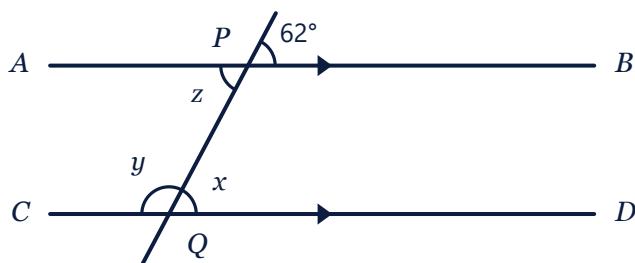


Diagram NOT accurately drawn

(3 marks)

Answer

5 AB and CD are parallel straight lines.

A straight line crosses AB at E and crosses CD at F. On line AB, A is to the left of E and B is to the right of E. On line CD, C is to the left of F and D is to the right of F.

Angle AEF = 62° .

Work out the size of angle CFE.

Give a reason for each stage of your working.

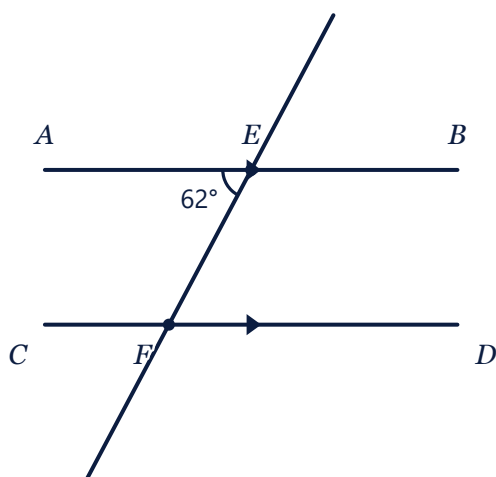


Diagram NOT accurately drawn

(4 marks)

Answer _____

- 6 PQR is a triangle. The side PQ is extended to the point S .

Angle $RQS = 112^\circ$ and angle $QPR = 44^\circ$.

Show that triangle PQR is isosceles. Give a reason for each stage of your working.

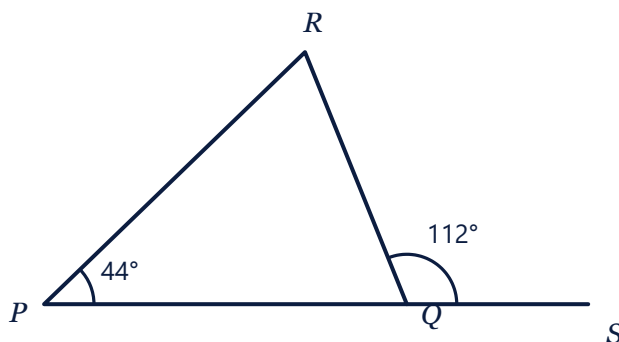


Diagram NOT accurately drawn

(4 marks)

Answer _____

- 7 ABC is a triangle. The side BC is extended to the point D .

Angle $BAC = a$ and angle $ABC = b$.

Prove that angle $ACD = a + b$.

Give a reason for each stage of your working.

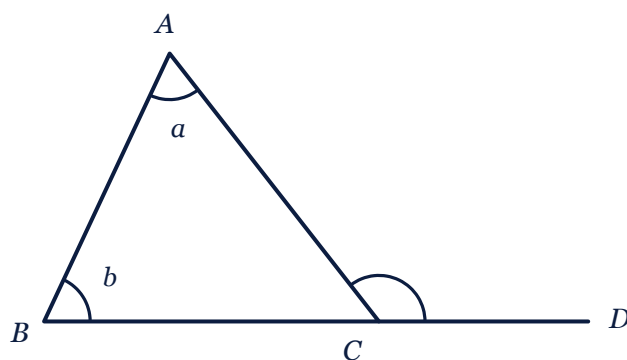


Diagram NOT accurately drawn

(3 marks)

Answer _____

8

- a. Work out the size of each exterior angle and each interior angle of a regular octagon.
b. Regular hexagons fit together with no gaps. Regular pentagons do not. Use angles to explain why.

(4 marks)

Answer _____

9

ABCDEF is a hexagon.
Angle A = angle D = 90° .
The other four interior angles are all equal.
Work out the size of angle B.

(4 marks)

Answer _____

10

AB and CD are parallel straight lines. A straight line crosses them both.
Two co-interior angles between the parallel lines are $(3x + 20)^\circ$ and $(2x - 15)^\circ$.
Work out the size of the smaller of these two angles.
You must show all your working.

(5 marks)

Answer _____

11

In triangle ABC, $AB = AC$.

The point D lies on BC so that AD bisects angle BAC.

Prove that triangle ABD is congruent to triangle ACD.

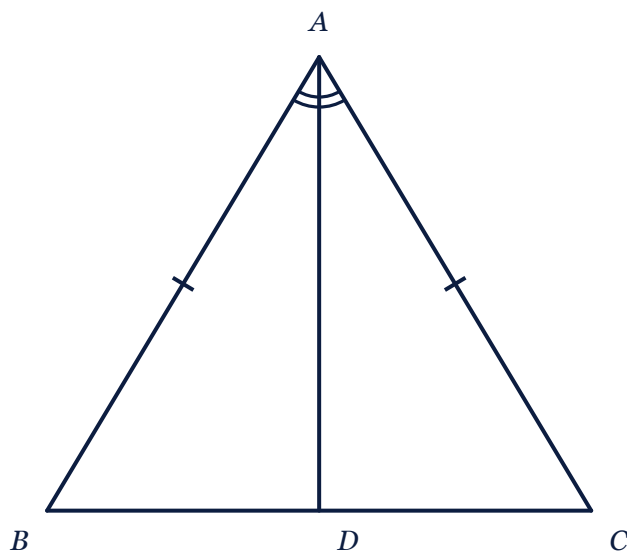


Diagram NOT accurately drawn

(3 marks)

Answer

12 AB and CD are parallel straight lines, with AB above CD.

E lies on AB and G lies on CD. F is a point between the two lines, to the right of both E and G, so that EFG forms a zigzag.

Angle BEF = 38° and angle DGF = 44° , where B is to the right of E and D is to the right of G.

Work out the size of angle EFG.

Give a reason for each stage of your working.

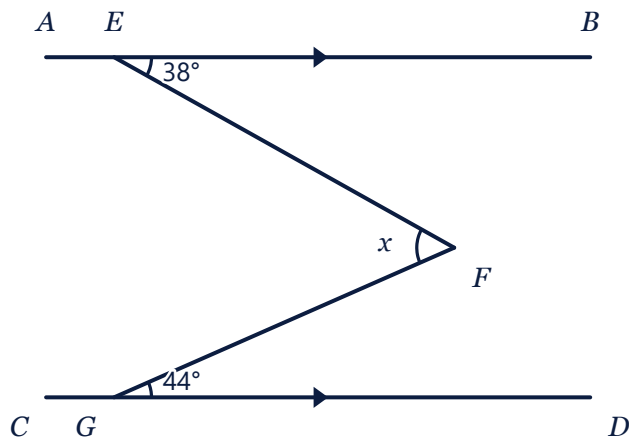


Diagram NOT accurately drawn

(5 marks)

Answer _____

EXTENSION QUESTIONS

13

ABCDEF is a regular hexagon. ABGH is a square.

The hexagon and the square have the same side length and share the side AB.

F is joined to H.

a. Work out the size of angle FAH.

b. Work out the size of angle AFH.

Give a reason for each stage of your working.

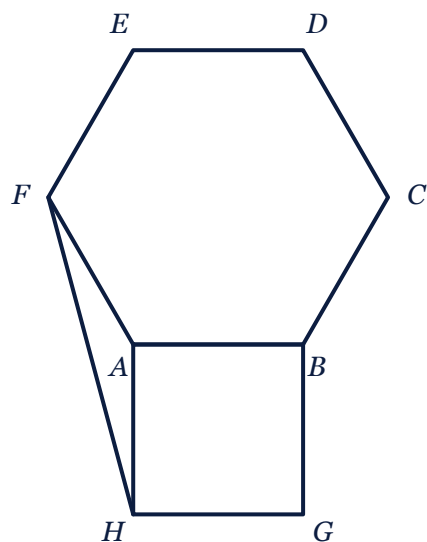


Diagram NOT accurately drawn

(5 marks)

Answer _____

End of questions | Total 49 marks