



GCSE Foundation/Higher 16

Shape, space and measure



Questions



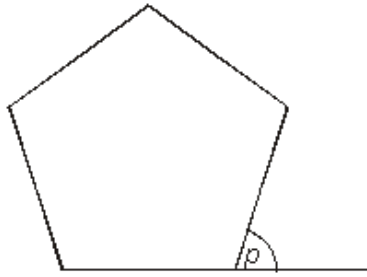
57 minutes



48 marks

Properties of shape

- Q1.** (a) Explain why the exterior angle of a regular pentagon, marked p on the diagram, is 72° .

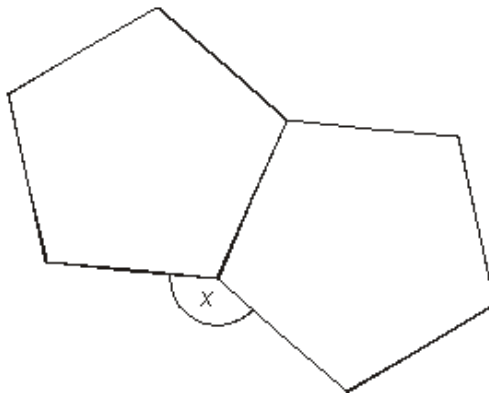


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(1)

- (b) Two identical regular pentagons are joined as shown.



Not drawn accurately

Work out the size of angle x .

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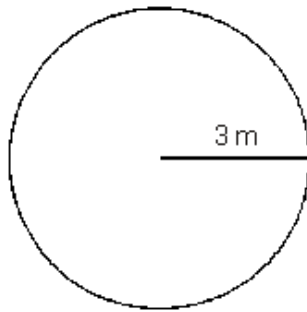
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Answerdegrees

(2)

(Total 3 marks)

- Q2.** (a) The diagram shows a circle of radius three metres.



Not drawn accurately

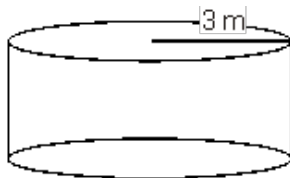
Work out the area of the circle.
Give your answer in terms of π .

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Answer m^2

(2)

- (b) The diagram shows a cylindrical water tank.
The cross-section of the tank is a circle of radius three metres.
The depth of water in the tank is 0.5 metres.



Not drawn accurately

Calculate the volume of water in the tank.
Give your answer in terms of π .

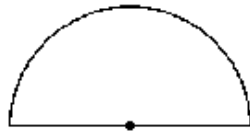
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Answer m^3

(2)

(Total 4 marks)

- Q3.** The radius of the semicircle is 10 cm.



Not drawn accurately

Work out the area of the semicircle.

State the units of your answer.

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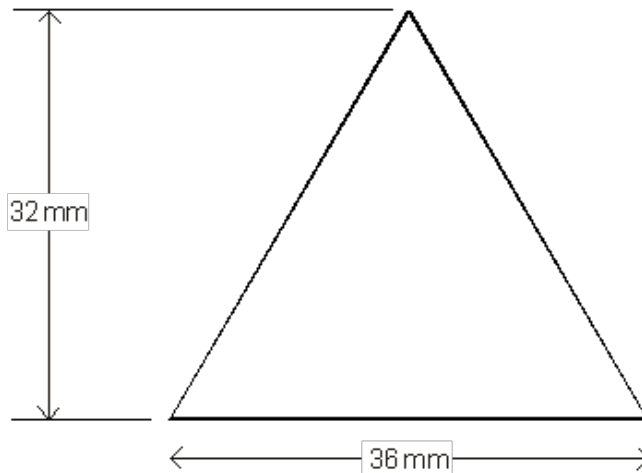
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Answer

(Total 3 marks)

- Q4.** The base of a triangle is 36 mm.

The height of the triangle is 32 mm.



Not drawn accurately

- (a) Work out the area of the triangle.

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Answer mm²

(2)

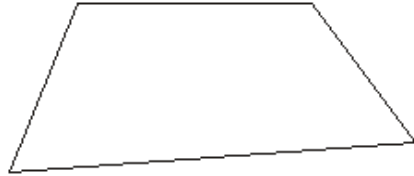
- (b) The dimensions of the triangle are given to the nearest millimetre.

Write down the least possible length of the base of the triangle.

Answer mm

(1)
(Total 3 marks)

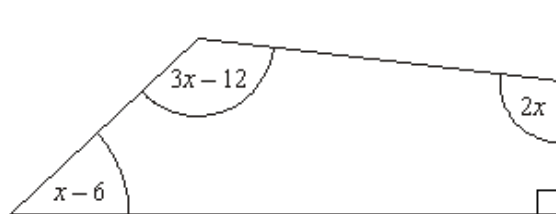
- Q5.** (a) Explain why the sum of the angles in any quadrilateral is 360° .



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(2)

- (b) A quadrilateral has one right angle.
 The other angles are $2x$, $3x-12$ and $x-6$



Not drawn accurately

- (i) Write down an equation in terms of x .

Answer

(1)

(ii) Solve your equation and find the size of the largest angle in the quadrilateral.

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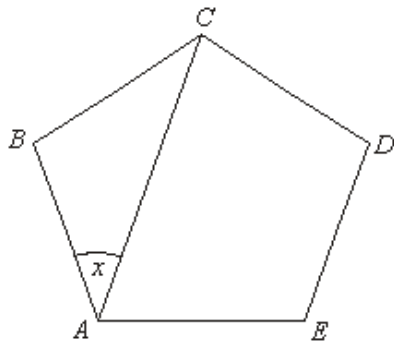
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Answer $x = \dots\dots\dots$ degrees

Largest angle = $\dots\dots\dots$ degrees

(3)
(Total 6 marks)

Q6. $ABCDE$ is a regular pentagon.



Not drawn accurately

Work out the value of x .

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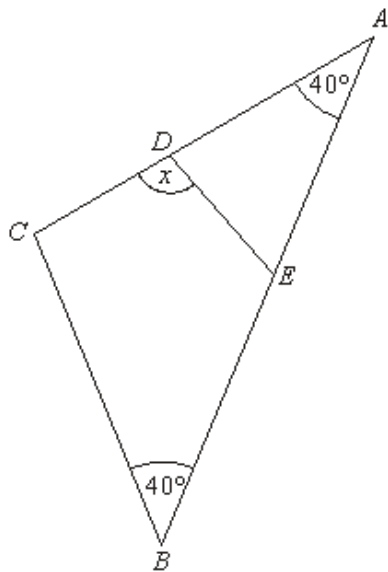
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Answer $x = \dots\dots\dots$ degrees

(Total 4 marks)

- Q7.** ABC is an isosceles triangle. $BCDE$ is a kite.



Not drawn accurately

Work out the value of x .

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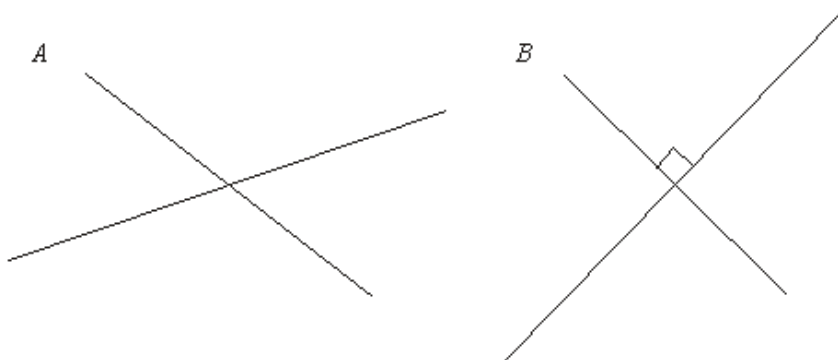
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Answer degrees

(Total 3 marks)

- Q8.** (a) The diagrams show the diagonals of two different quadrilaterals.



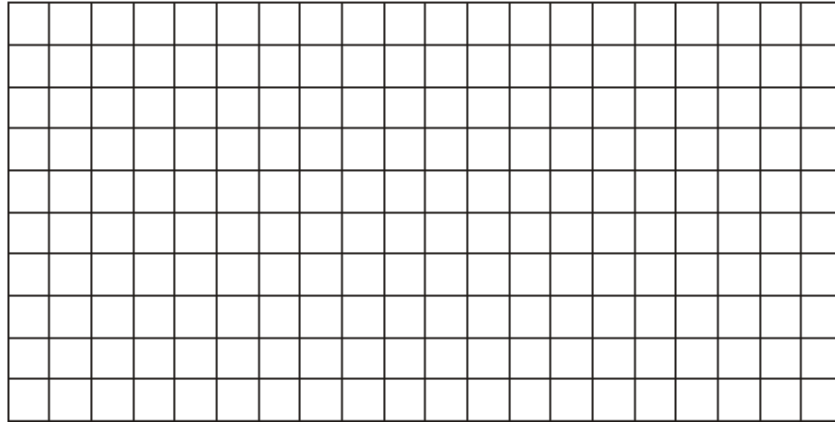
Write down the names of these quadrilaterals.

Answer Quadrilateral A

Quadrilateral B

(2)

- (b) (i) On the grid below draw a quadrilateral that has only one pair of parallel and exactly two right angles.



(1)

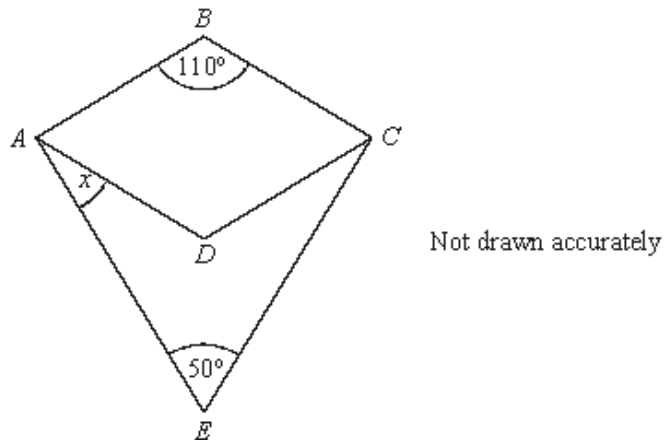
- (ii) Write down the name of this quadrilateral.

Answer

(1)

(Total 4 marks)

- Q9.** $ABCD$ is a rhombus and $ABCE$ is a kite.



Work out the value of x .

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Answer degrees

(Total 4 marks)

- Q10.** The sizes of the interior angles of a quadrilateral are in the ratio

$3 : 4 : 6 : 7$

Calculate the size of the largest angle.

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Answer

(Total 3 marks)

Q11. The diagram shows part of a regular polygon.

Each interior angle is 162° .



Calculate the number of sides of the polygon.

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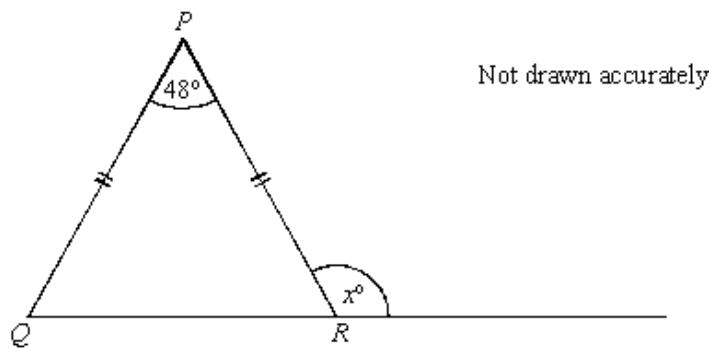
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Answer

(Total 3 marks)

Q12. (a) Triangle PQR is isosceles.
 $PQ = PR$.



Work out the value of x .

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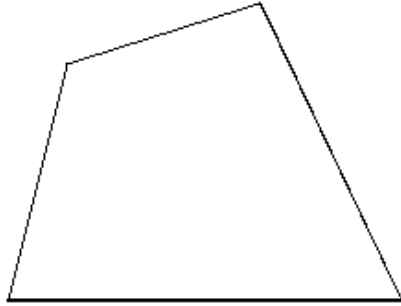
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Answer degrees

(3)

- (b) Explain why the sum of the interior angles of any quadrilateral is 360° .



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(2)
(Total 5 marks)

Q13. Here is a list of quadrilaterals.

kite rectangle rhombus square trapezium

For each of the following descriptions, choose the correct name from the list.
You may find it helpful to sketch the quadrilaterals in the spaces provided.

- (a) One pair of sides are parallel.
The other two sides are not parallel.

Answer

(1)

- (b) All the angles are the same size.
Only opposite sides are equal.

Answer

(1)

- (c) All the sides are the same length. The diagonals are not equal in length.

Answer

(1)
(Total 3 marks)

