

GCSE MATHS • GRADE 2

MATHS



MODEL ANSWERS

ANGLES

SCORE

/185

PERCENTAGE

%

STEM UP

- 1 An angle is 120° .

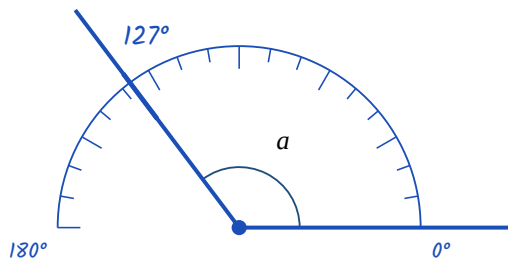
Write down the mathematical name for this type of angle.

Compare with 90° and 180°

Obtuse angle

/ 1

- 2 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

127° (accept 125° to 129°)

/ 1

- 3 An angle is 90° .

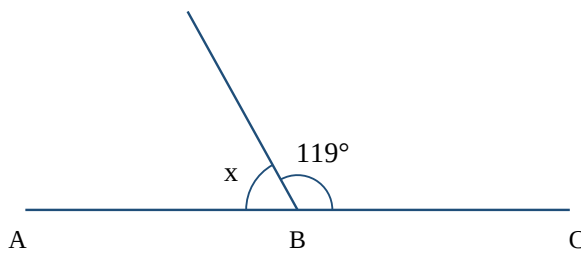
Write down the mathematical name for this type of angle.

Compare with 90° and 180°

Right angle

/ 1

- 4 ABC is a straight line. Work out the size of the angle marked x. Diagram NOT accurately drawn.

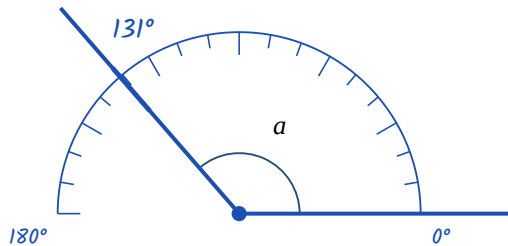


Angles on a straight line add up to 180° : $180 - 119 = 61$

61°

1 / 1

- 5 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

131° (accept 129° to 133°)

1 / 1

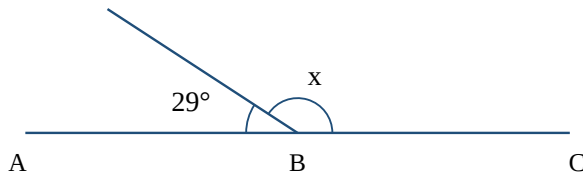
- 6 What type of angle is 203° ?
Choose from: acute, right, obtuse, reflex.

Compare with 90° and 180°

A reflex angle

1 / 1

- 7 ABC is a straight line. Work out the size of the angle marked x. Diagram NOT accurately drawn.

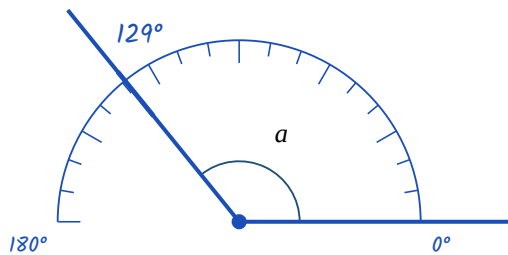


Angles on a straight line add up to 180° : $180 - 29 = 151$

151°

/ 1

- 8 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

129° (accept 127° to 131°)

/ 1

- 9 What type of angle is 19° ?
Choose from: acute, right, obtuse, reflex.

Compare with 90° and 180°

An acute angle

/ 1

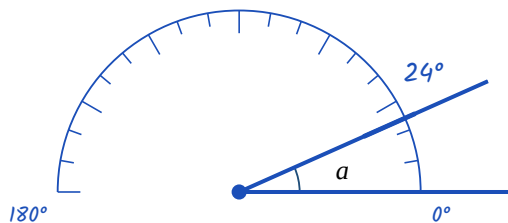
- 10 Two angles in a triangle are 33° and 63° .
Work out the third angle.

$$180 - 33 - 63 = 84$$

84°

1 / 1

- 11 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

24° (accept 22° to 26°)

1 / 1

- 12 What type of angle is 13° ?
Choose from: acute, right, obtuse, reflex.

Compare with 90° and 180°

An acute angle

1 / 1

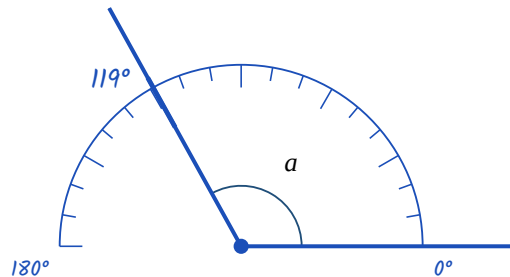
- 13 Two angles in a triangle are 72° and 38° .
Work out the third angle.

$$180 - 72 - 38 = 70$$

70°

1 / 1

- 14 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

119° (accept 117° to 121°)

1 / 1

- 15 An angle is 30° .
Write down the mathematical name for this type of angle.

Compare with 90° and 180°

Acute angle

1 / 1

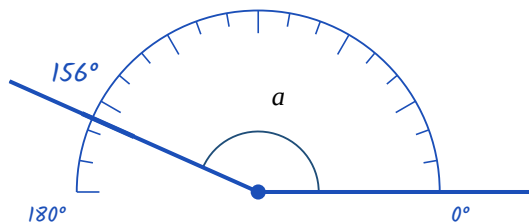
- 16 Two angles in a triangle are 46° and 66° .
Work out the third angle.

$$180 - 46 - 66 = 68$$

68°

1 / 1

- 17 Use a protractor to measure the size of the angle marked a.



Place the protractor on the vertex and read the scale from 0°

156° (accept 154° to 158°)

1 / 1

- 18 An angle is 200° .
Write down the mathematical name for this type of angle.

Compare with 90° and 180°

Reflex angle

1 / 1

- 19 Angles on a straight line are 71° , 62° and x .
Work out the value of x .

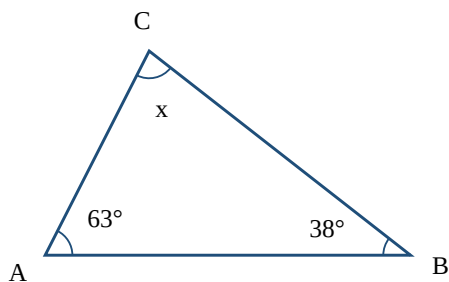
$$180 - 71 - 62 = 47$$

$$x = 47^\circ$$

1

 / 1

- 20 Work out the size of the angle marked x . Diagram NOT accurately drawn.



Angles in a triangle add up to 180° : $180 - 63 - 38 = 79$

$$79^\circ$$

1

 / 1

- 21 An angle is 190° .
Write down the mathematical name for this type of angle.

Compare with 90° and 180°

Reflex angle

1

 / 1

- 22 Angles on a straight line are 33° , 30° and x .
Work out the value of x .

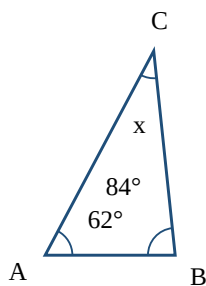
$$180 - 33 - 30 = 117$$

$$x = 117^\circ$$

1

 / 1

- 23 Work out the size of the angle marked x . Diagram NOT accurately drawn.



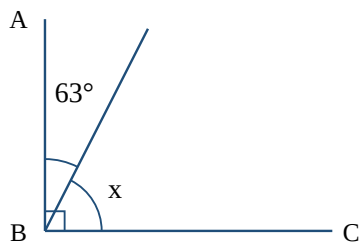
Angles in a triangle add up to 180° : $180 - 62 - 84 = 34$

$$34^\circ$$

1

 / 1

- 24 AB and BC are perpendicular lines.
Work out the size of the angle marked x . Diagram NOT accurately drawn.



Perpendicular lines meet at 90° : $90 - 63 = 27$

$$27^\circ$$

1

 / 1

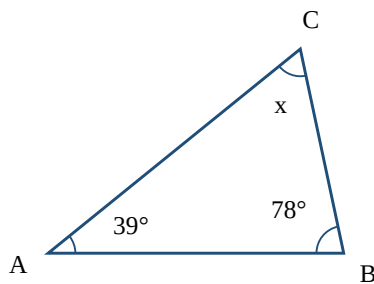
- 25 Angles on a straight line are 33° , 51° and x .
Work out the value of x .

$$180 - 33 - 51 = 96$$

$$x = 96^\circ$$

/ 1

- 26 Work out the size of the angle marked x . Diagram NOT accurately drawn.

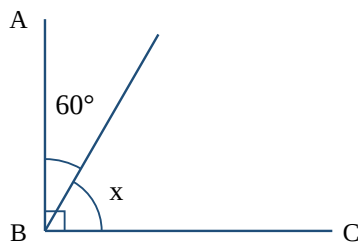


Angles in a triangle add up to 180° :
 $180 - 39 - 78 = 63$

$$63^\circ$$

/ 1

- 27 AB and BC are perpendicular lines.
Work out the size of the angle marked x . Diagram NOT accurately drawn.



Perpendicular lines meet at 90° : $90 - 60 = 30$

$$30^\circ$$

/ 1

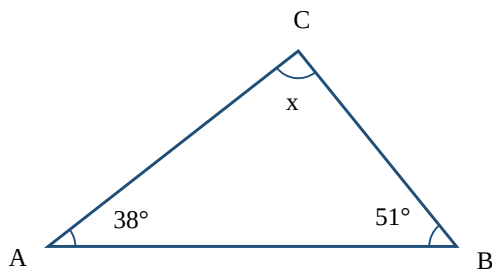
- 28 Three angles in a quadrilateral are 118° , 99° and 86° .
Work out the fourth angle.

$$360 - 118 - 99 - 86 = 57$$

57°

/ 1

- 29 Work out the size of the angle marked x. Diagram NOT accurately drawn.

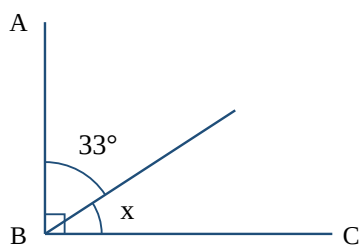


Angles in a triangle add up to 180° : $180 - 38 - 51 = 91$

91°

/ 1

- 30 AB and BC are perpendicular lines.
Work out the size of the angle marked x. Diagram NOT accurately drawn.



Perpendicular lines meet at 90° : $90 - 33 = 57$

57°

/ 1

- 31 Three angles in a quadrilateral are 109° , 78° and 95° .
Work out the fourth angle.

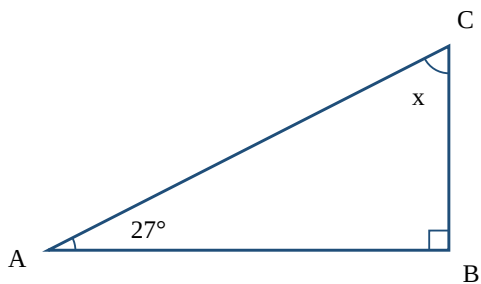
$$360 - 109 - 78 - 95 = 78$$

78°

/ 1

- 32 ABC is a right-angled triangle.
Work out the size of the angle marked x. Diagram NOT accurately drawn.

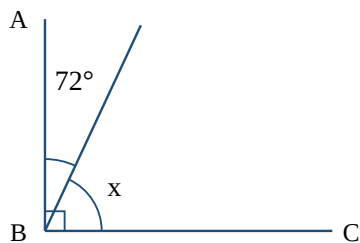
$$180 - 90 - 27 = 63$$



63°

/ 1

- 33 AB and BC are perpendicular lines.
Work out the size of the angle marked x. Diagram NOT accurately drawn.



Perpendicular lines meet at 90° : $90 - 72 = 18$

18°

/ 1

- 34 Angles around a point are 73° , 105° , 74° and x .
Work out the value of x .

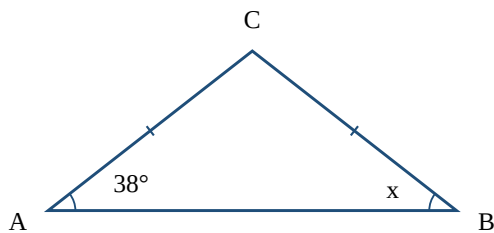
$$360 - 73 - 105 - 74 = 108$$

$$x = 108^\circ$$

1

 / 1

- 35 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.



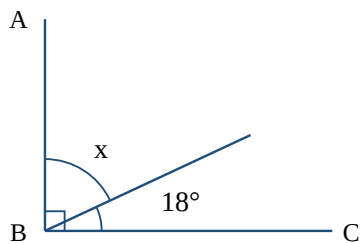
The base angles of an isosceles triangle are equal

$$38^\circ$$

1

 / 1

- 36 AB and BC are perpendicular lines.
Work out the size of the angle marked x . Diagram NOT accurately drawn.



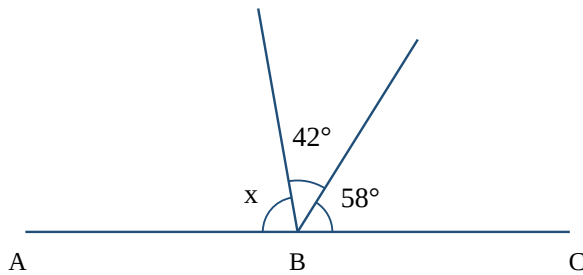
Perpendicular lines meet at 90° : $90 - 18 = 72$

$$72^\circ$$

1

 / 1

- 37 ABC is a straight line. Work out the size of the angle marked x. Diagram NOT accurately drawn.

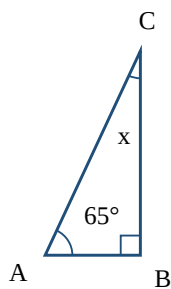


$$180 - 42 - 58 = 80$$

80°

/ 1

- 38 ABC is a right-angled triangle. Work out the size of the angle marked x. Diagram NOT accurately drawn.

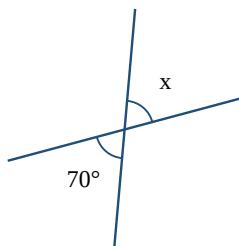


$$180 - 90 - 65 = 25$$

25°

/ 1

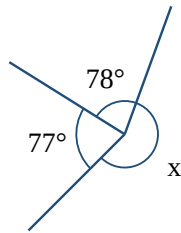
- 39 Work out the size of the angle marked x. Give a reason for your answer. Diagram NOT accurately drawn.



$x = 70^\circ$ (Vertically opposite angles are equal)

/ 1

- 40 Work out the size of the angle marked x. Diagram NOT accurately drawn.



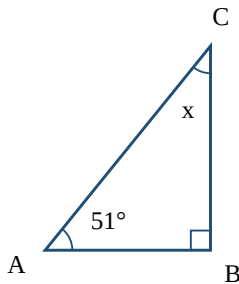
$$360 - (78 + 77) = 205$$

205°

1 / 1

- 41 ABC is a right-angled triangle.
Work out the size of the angle marked x. Diagram NOT accurately drawn.

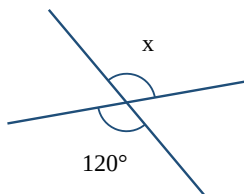
$$180 - 90 - 51 = 39$$



39°

2 / 2

- 42 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

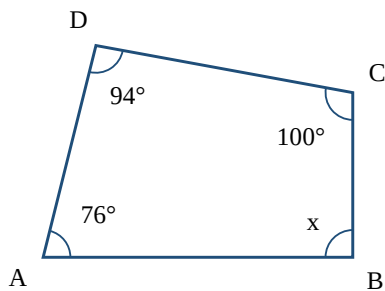


$x = 120^\circ$ (Vertically opposite angles are equal)

2 / 2

- 43 ABCD is a quadrilateral.

Work out the size of the angle marked x. Diagram NOT accurately drawn.



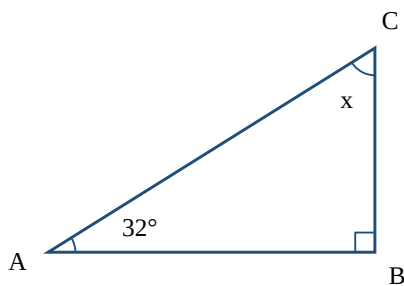
Angles in a quadrilateral add up to 360° : $360 - (76 + 100 + 94) = 90$

90°

2 / 2

- 44 ABC is a right-angled triangle.

Work out the size of the angle marked x. Diagram NOT accurately drawn.



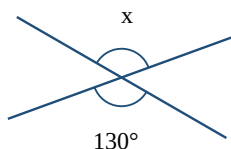
$$180 - 90 - 32 = 58$$

58°

2 / 2

- 45 Work out the size of the angle marked x.

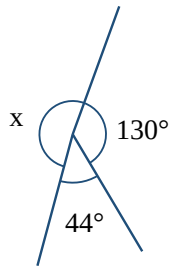
Give a reason for your answer. Diagram NOT accurately drawn.



$x = 130^\circ$ (Vertically opposite angles are equal)

2 / 2

- 46 Work out the size of the angle marked x. Diagram NOT accurately drawn.

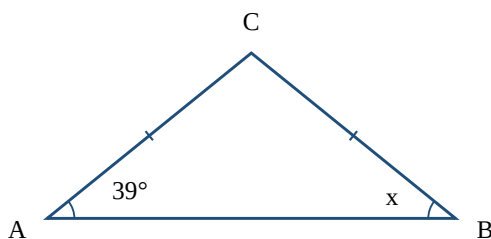


$$360 - (44 + 130) = 186$$

186°

2 / 2

- 47 ABC is an isosceles triangle with AC = BC.
Work out the size of the angle marked x. Diagram NOT accurately drawn.

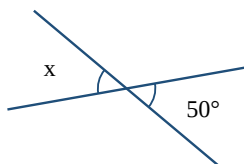


The base angles of an isosceles triangle are equal

39°

2 / 2

- 48 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

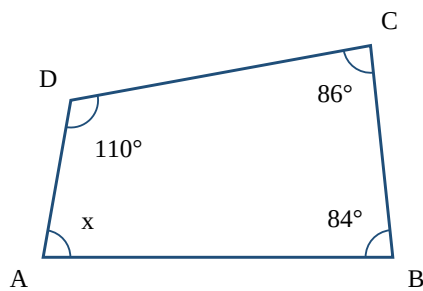


x = 50° (Vertically opposite angles are equal)

2 / 2

- 49 ABCD is a quadrilateral.

Work out the size of the angle marked x. Diagram NOT accurately drawn.

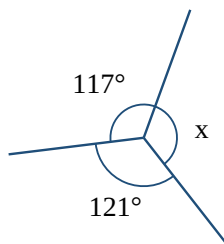


Angles in a quadrilateral add up to 360° : $360 - (84 + 86 + 110) = 80$

80°

2 / 2

- 50 Work out the size of the angle marked x. Diagram NOT accurately drawn.



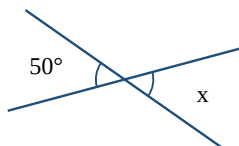
$$360 - (117 + 121) = 122$$

122°

2 / 2

- 51 Work out the size of the angle marked x.

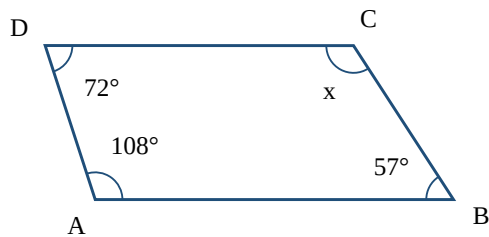
Give a reason for your answer. Diagram NOT accurately drawn.



$x = 50^\circ$ (Vertically opposite angles are equal)

2 / 2

- 52 ABCD is a quadrilateral.
Work out the size of the angle marked x. Diagram NOT accurately drawn.

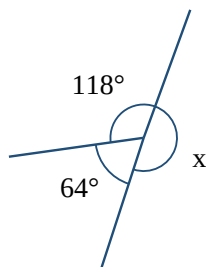


Angles in a quadrilateral add up to 360° : $360 - (108 + 57 + 72) = 123$

123°

2 / 2

- 53 Work out the size of the angle marked x. Diagram NOT accurately drawn.

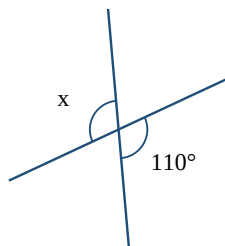


$$360 - (118 + 64) = 178$$

178°

2 / 2

- 54 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

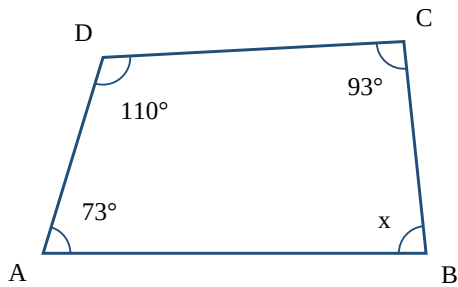


$x = 110^\circ$ (Vertically opposite angles are equal)

2 / 2

55 ABCD is a quadrilateral.

Work out the size of the angle marked x. Diagram NOT accurately drawn.

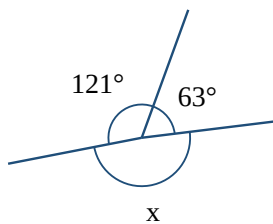


Angles in a quadrilateral add up to 360° : $360 - (73 + 93 + 110) = 84$

84°

2 / 2

56 Work out the size of the angle marked x. Diagram NOT accurately drawn.



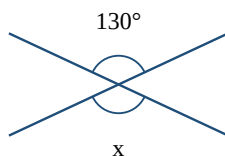
$$360 - (121 + 63) = 176$$

176°

2 / 2

57 Work out the size of the angle marked x.

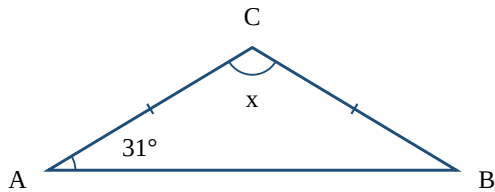
Give a reason for your answer. Diagram NOT accurately drawn.



$x = 130^\circ$ (Vertically opposite angles are equal)

2 / 2

- 58 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

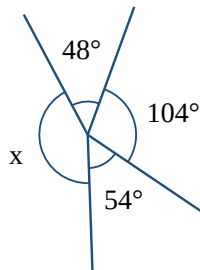


The other base angle is also 31° : $180 - 31 - 31$
 $= 118$

118°

2 / 2

- 59 Work out the size of the angle marked x . Diagram NOT accurately drawn.

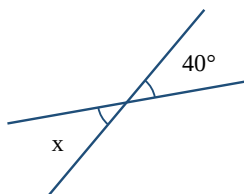


$$360 - (48 + 54 + 104) = 154$$

154°

2 / 2

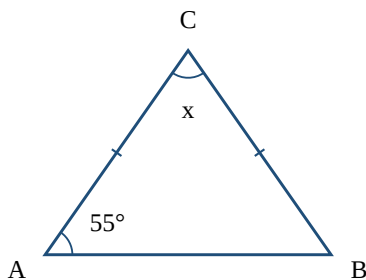
- 60 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.



$x = 40^\circ$ (Vertically opposite
angles are equal)

2 / 2

- 61 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

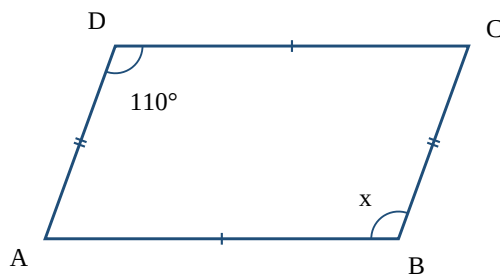


The other base angle is also 55° : $180 - 55 - 55 = 70$

70°

2 / 2

- 62 ABCD is a parallelogram.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

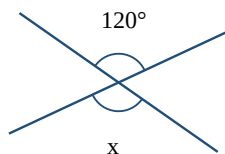


*Opposite angles of a parallelogram are equal
neighbouring angles add up to 180°*

110°

2 / 2

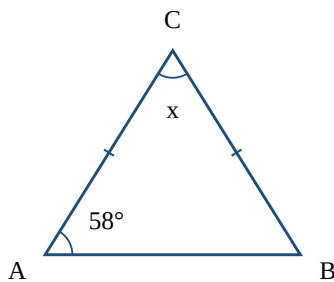
- 63 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.



*$x = 120^\circ$ (Vertically opposite
angles are equal)*

2 / 2

- 64 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

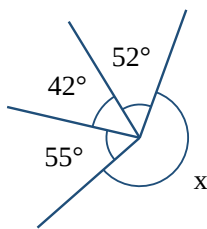


The other base angle is also 58° : $180 - 58 - 58 = 64$

64°

2 / 2

- 65 Work out the size of the angle marked x . Diagram NOT accurately drawn.

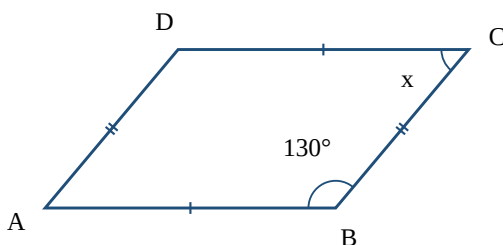


$$360 - (52 + 42 + 55) = 211$$

211°

2 / 2

- 66 ABCD is a parallelogram.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

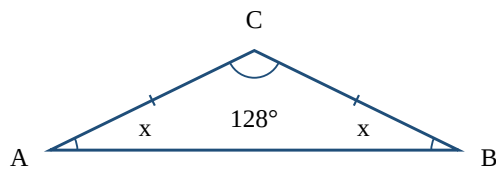


Opposite angles of a parallelogram are equal
neighbouring angles add up to 180°

50°

2 / 2

- 67 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

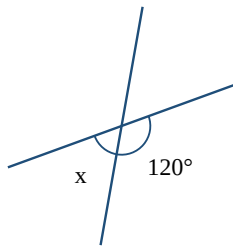


$$(180 - 128) \div 2 = 26$$

26°

2 / 2

- 68 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.

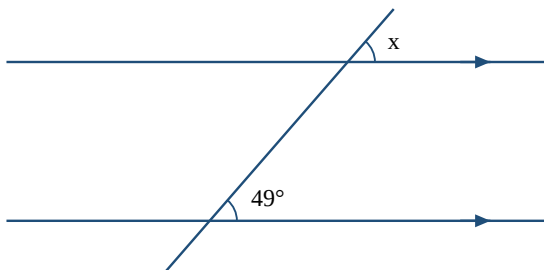


Angles on a straight line add up to 180°: $180 - 120 = 60$

$x = 60^\circ$ (Angles on a straight line add up to 180°)

2 / 2

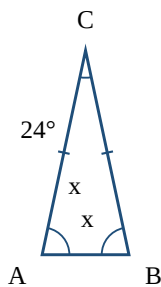
- 69 The two lines are parallel.
Work out the size of the angle marked x . Give a reason for your answer. Diagram NOT accurately drawn.



$x = 49^\circ$ (Corresponding angles are equal)

2 / 2

- 70 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

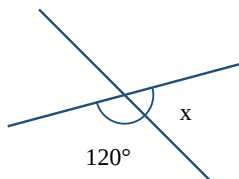


$$(180 - 24) \div 2 = 78$$

78°

2 / 2

- 71 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.

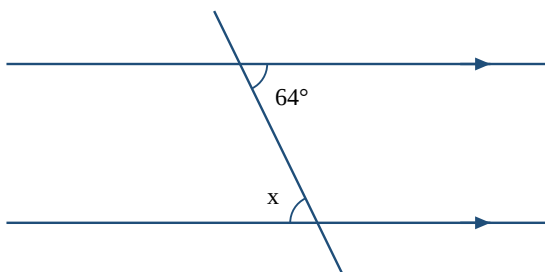


Angles on a straight line add up to 180°: $180 - 120 = 60$

$x = 60^\circ$ (Angles on a straight line add up to 180°)

2 / 2

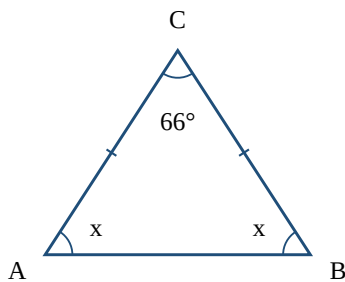
- 72 The two lines are parallel.
Work out the size of the angle marked x . Give a reason for your answer. Diagram NOT accurately drawn.



$x = 64^\circ$ (Alternate angles are equal)

2 / 2

- 73 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

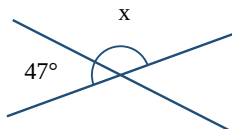


$$(180 - 66) \div 2 = 57$$

57°

2 / 2

- 74 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.

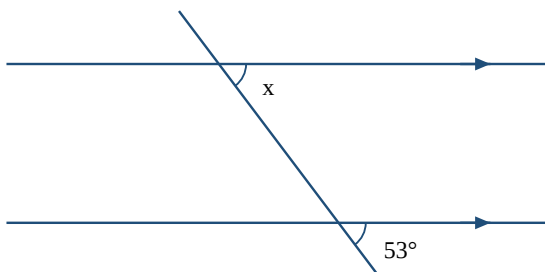


Angles on a straight line add up to 180°: $180 - 47 = 133$

$x = 133^\circ$ (Angles on a straight line add up to 180°)

2 / 2

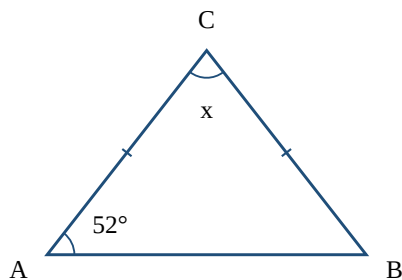
- 75 The two lines are parallel.
Work out the size of the angle marked x . Give a reason for your answer. Diagram NOT accurately drawn.



$x = 53^\circ$ (Corresponding angles are equal)

2 / 2

- 76 ABC is an isosceles triangle with $AC = BC$.
Work out the size of the angle marked x . Diagram NOT accurately drawn.

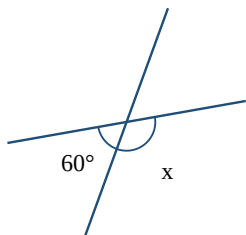


The other base angle is also 52° : $180 - 52 - 52 = 76$

76°

3 / 3

- 77 Work out the size of the angle marked x .
Give a reason for your answer. Diagram NOT accurately drawn.

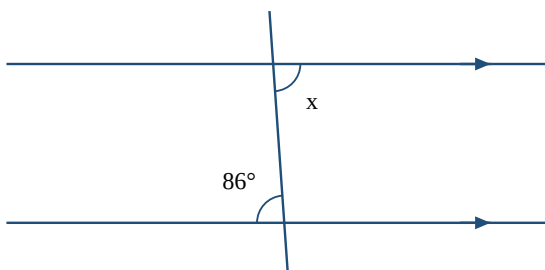


Angles on a straight line add up to 180° : $180 - 60 = 120$

$x = 120^\circ$ (Angles on a straight line add up to 180°)

3 / 3

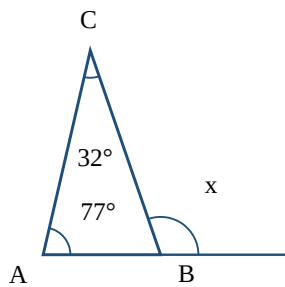
- 78 The two lines are parallel.
Work out the size of the angle marked x . Give a reason for your answer. Diagram NOT accurately drawn.



$x = 86^\circ$ (Alternate angles are equal)

3 / 3

- 79 ABC is a triangle. The side AB is extended to a point D.
Work out the size of the exterior angle marked x. Diagram NOT accurately drawn.

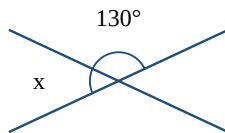


The exterior angle equals the sum of the two opposite interior angles: $77 + 32 = 109$

109°

3 / 3

- 80 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

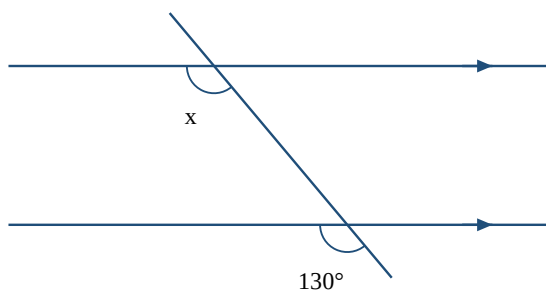


Angles on a straight line add up to 180°: $180 - 130 = 50$

$x = 50^\circ$ (Angles on a straight line add up to 180°)

3 / 3

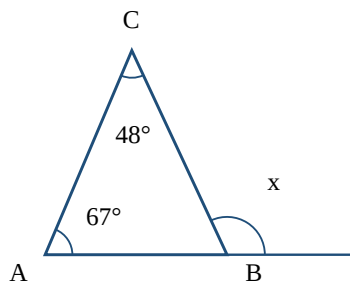
- 81 The two lines are parallel.
Work out the size of the angle marked x. Give a reason for your answer. Diagram NOT accurately drawn.



$x = 130^\circ$ (Corresponding angles are equal)

3 / 3

- 82 ABC is a triangle. The side AB is extended to a point D.
Work out the size of the exterior angle marked x. Diagram NOT accurately drawn.

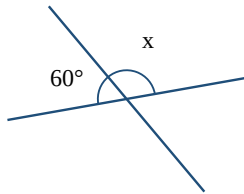


The exterior angle equals the sum of the two opposite interior angles: $67 + 48 = 115$

115°

3 / 3

- 83 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

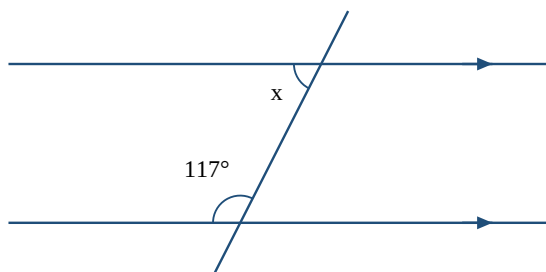


Angles on a straight line add up to 180°: $180 - 60 = 120$

$x = 120^\circ$ (Angles on a straight line add up to 180°)

3 / 3

- 84 The two lines are parallel.
Work out the size of the angle marked x. Give a reason for your answer. Diagram NOT accurately drawn.

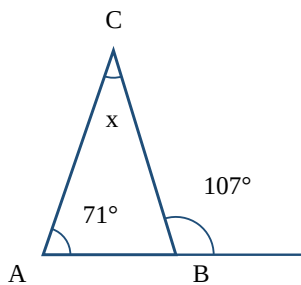


Co-interior angles add up to 180°: $180 - 117 = 63$

$x = 63^\circ$ (Co-interior angles add up to 180°)

3 / 3

- 85 ABC is a triangle. The side AB is extended to a point D.
Work out the size of the angle marked x. Diagram NOT accurately drawn.

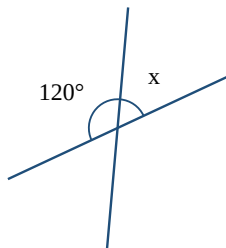


Exterior angle = sum of opposite interior angles, so $x = 107 - 71 = 36$

36°

3 / 3

- 86 Work out the size of the angle marked x.
Give a reason for your answer. Diagram NOT accurately drawn.

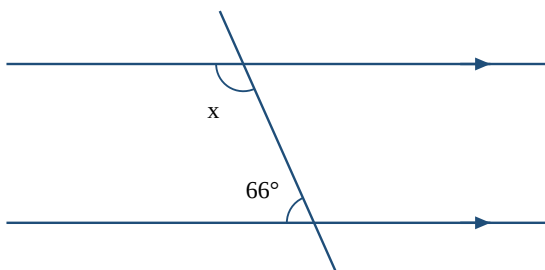


Angles on a straight line add up to 180°: $180 - 120 = 60$

$x = 60^\circ$ (Angles on a straight line add up to 180°)

3 / 3

- 87 The two lines are parallel.
Work out the size of the angle marked x. Give a reason for your answer. Diagram NOT accurately drawn.

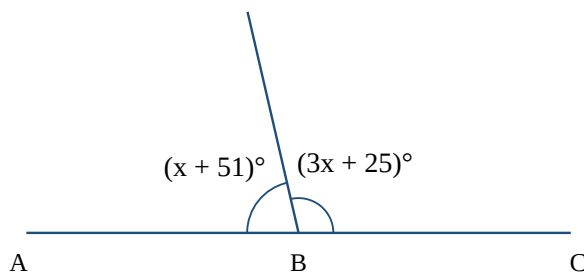


Co-interior angles add up to 180°: $180 - 66 = 114$

$x = 114^\circ$ (Co-interior angles add up to 180°)

3 / 3

- 88 ABC is a straight line. Work out the value of x . Diagram NOT accurately drawn.



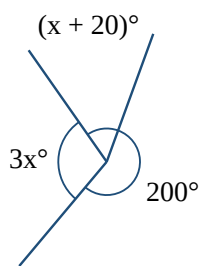
$$(3x + 25) + (x + 51) = 180, \text{ so } 4x + 76 = 180$$

$$\text{and } x = 26$$

$$x = 26$$

3 / 3

- 89 Work out the value of x . Diagram NOT accurately drawn.



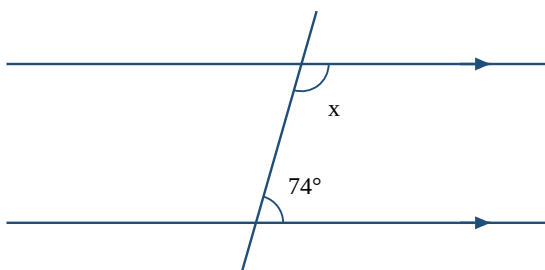
$$(x + 20) + 3x + 200 = 360, \text{ so } 4x + 220 = 360$$

$$\text{and } x = 35$$

$$x = 35$$

3 / 3

- 90 The two lines are parallel.
Work out the size of the angle marked x . Give a reason for your answer. Diagram NOT accurately drawn.

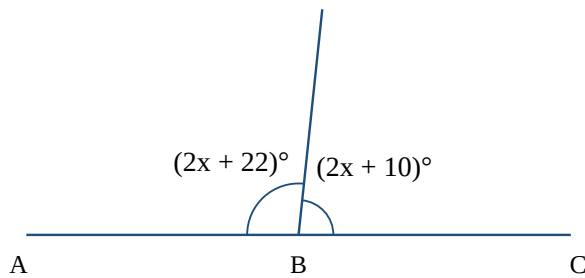


Co-interior angles add up to 180° : $180 - 74 = 106$

$$x = 106^\circ \text{ (Co-interior angles add up to } 180^\circ)$$

3 / 3

- 91 ABC is a straight line. Work out the value of x . Diagram NOT accurately drawn.

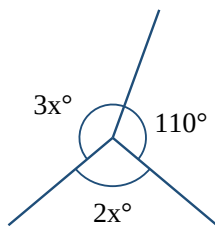


$$(2x + 10) + (2x + 22) = 180, \text{ so } 4x + 32 = 180 \text{ and } x = 37$$

$$x = 37$$

3 / 3

- 92 Work out the value of x . Diagram NOT accurately drawn.

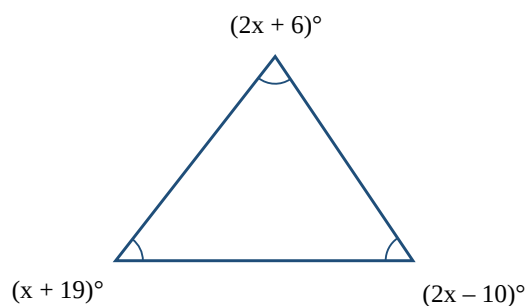


$$3x + 2x + 110 = 360, \text{ so } 5x + 110 = 360 \text{ and } x = 50$$

$$x = 50$$

3 / 3

- 93 Work out the value of x . Diagram NOT accurately drawn.

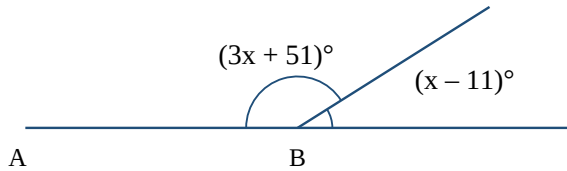


$$\text{The three angles add up to } 180^\circ, \text{ so } 5x + 15 = 180 \text{ and } x = 33$$

$$x = 33$$

3 / 3

- 94 ABC is a straight line. Work out the value of x . Diagram NOT accurately drawn.



$$(x - 11) + (3x + 51) = 180, \text{ so } 4x + 40 = 180$$

$$\text{and } x = 35$$

$$x = 35$$

3 / 3

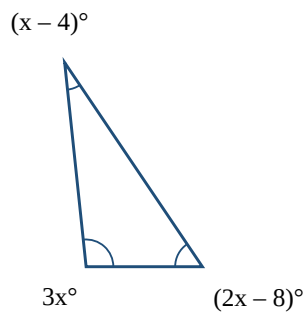
- 95 Work out the size of one interior angle of a regular pentagon.

$$(5 - 2) \times 180 \div 5 = 108$$

$$108^\circ$$

3 / 3

- 96 Work out the value of x . Diagram NOT accurately drawn.

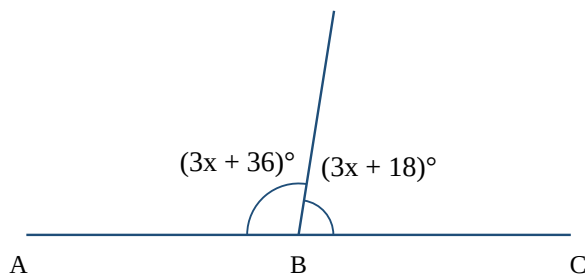


$$\text{The three angles add up to } 180^\circ, \text{ so } 6x - 12 = 180 \text{ and } x = 32$$

$$x = 32$$

3 / 3

- 97 ABC is a straight line. Work out the value of x . Diagram NOT accurately drawn.

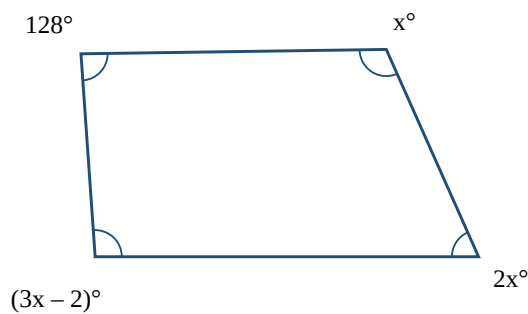


$$(3x + 18) + (3x + 36) = 180, \text{ so } 6x + 54 = 180 \text{ and } x = 21$$

$$x = 21$$

3 / 3

- 98 ABCD is a quadrilateral. Work out the value of x . Diagram NOT accurately drawn.

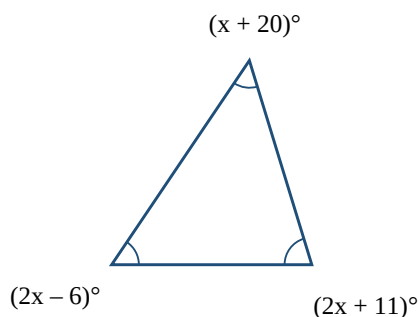


$$(3x - 2) + 2x + x + 128 = 360, \text{ so } 6x + 126 = 360 \text{ and } x = 39$$

$$x = 39$$

3 / 3

- 99 Work out the value of x . Diagram NOT accurately drawn.

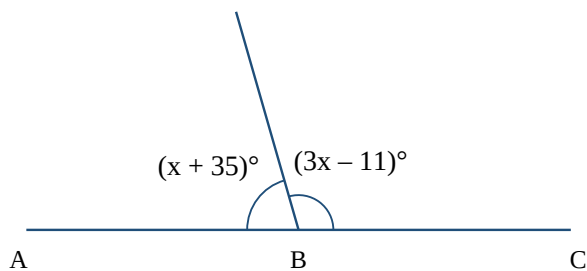


$$\text{The three angles add up to } 180^\circ, \text{ so } 5x + 25 = 180 \text{ and } x = 31$$

$$x = 31$$

3 / 3

100 ABC is a straight line. Work out the value of x . Diagram NOT accurately drawn.



$$(3x - 11) + (x + 35) = 180, \text{ so } 4x + 24 = 180$$

and $x = 39$

$$x = 39$$

3 / 3