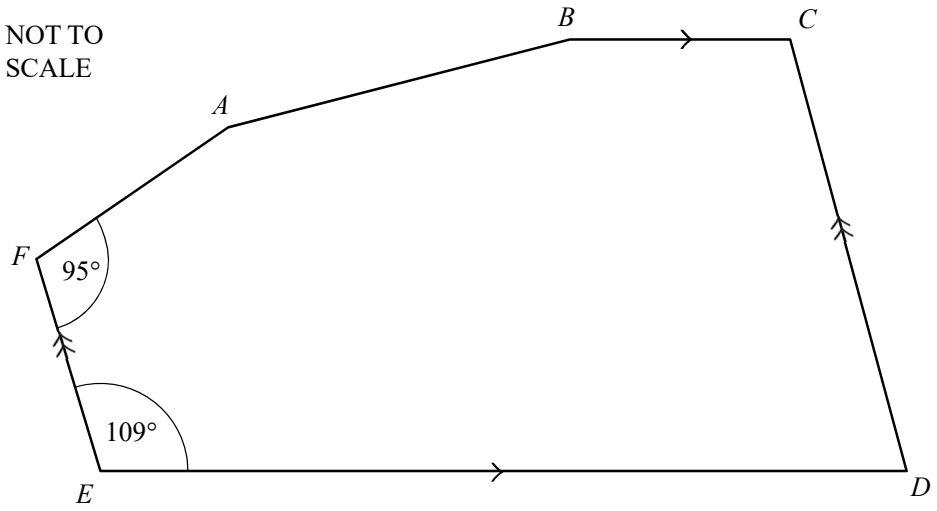
EXAM PAPERS PRACTICE

Parallel Lines

Model Answer



In the hexagon *ABCDEF*, *BC* is parallel to *ED* and *DC* is parallel to *EF*.
Angle *DEF* = 109° and angle *EFA* = 95°.
Angle *FAB* is equal to angle *ABC*.
Find the size of

(a) angle *EDC*,

(b) angle *FAB*.

[1]

Solution:

DC II EF

$\Rightarrow \angle DEF + \angle EDC = 180^\circ$

$\Rightarrow 109^\circ + \angle EDC = 180^\circ$

$\Rightarrow \angle EDC = 71^\circ$

BC‖ED

$\Rightarrow \angle EDC + \angle DCB = 180^\circ$

$\Rightarrow \angle DCB = 109^\circ$

Sum of all angles of Hexagon $= 720^\circ$

$\Rightarrow 95^\circ + 109^\circ + 71^\circ + 109^\circ + \angle FAB + \angle ABC = 720^\circ$

$\angle FAB = \angle ABC$ given

$\Rightarrow > 384 + \angle FAB + \angle FAB = 720^\circ$

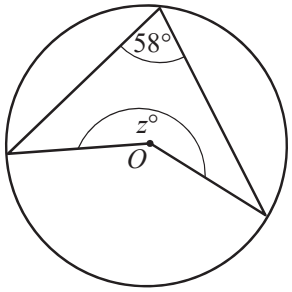
$\Rightarrow > 2\angle FAB = 336^\circ$

$\Rightarrow \angle FAB = 168^\circ$

$\angle EDC = 71^\circ, \angle FAB = 168^\circ$

[2]

(c)



NOT TO SCALE

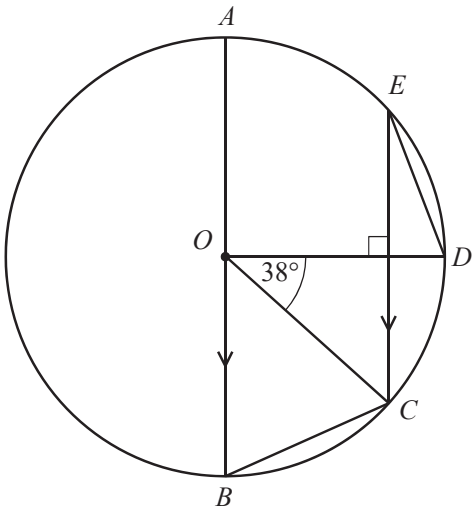
The diagram shows a circle, centre O.

Find the value of z.

[2]

The center angle: $58° \times 2 = 116°$

$z° = 360° - 116° = 244°$



NOT TO SCALE

AB is the diameter of a circle, centre O. C, D and E lie on the circle.
EC is parallel to AB and perpendicular to OD. Angle DOC is 38°.

Work out

(a) angle BOC , [1]

So $AB \perp OD$.
So $\angle BOD = 90°$.
So $\angle BOC = 90° - \angle COD$
$= 90° - 38° = 52°$

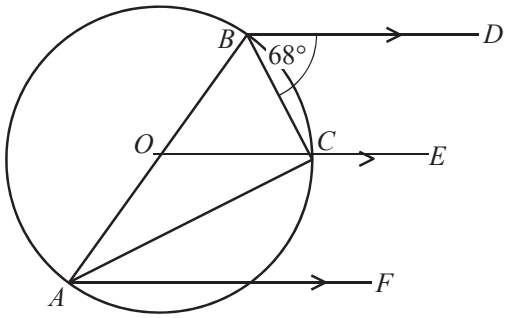
(b) angle CBO, [1]

Angle $AOC = 90° + 38° = 128°$ angle AOC is the center angle of the arc AC.
angle CBO is the inscribed Angle of the arc $AC \cdot \angle CBO = \frac{1}{2}\angle AOC = \frac{1}{2} \times 128 = 64°$.

(c) angle EDO . [2]

$\angle EDO = 90° - 19° = 71°$

NOT TO SCALE



Points A, B and C lie on a circle, centre O, with diameter AB.
BD, OCE and AF are parallel lines.
Angle $CBD = 68°$.

Calculate

(a) angle BOC,

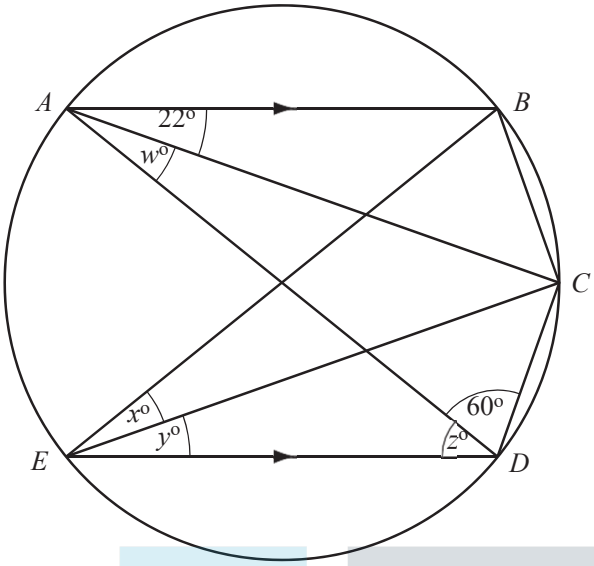
angle BOC is 112 degrees.

[2]

(b) angle ACE.

Angle ACE = 68°

[2]



NOT TO SCALE

AD is a diameter of the circle *ABCDE*.
Angle *BAC* = 22° and angle *ADC* = 60°.
AB and *ED* are parallel lines.
Find the values of *w*, *x*, *y* and *z*.

$\angle ACD = 90^\circ \quad \{AD \text{ is a diameter }\}$

$w^\circ = 90^\circ - 60^\circ = 30^\circ$

$y^\circ = w^\circ = 30^\circ$

{ The circumterential angle theorem }

$z^\circ = 22^\circ + w^\circ = 22^\circ + 30^\circ = 52^\circ$

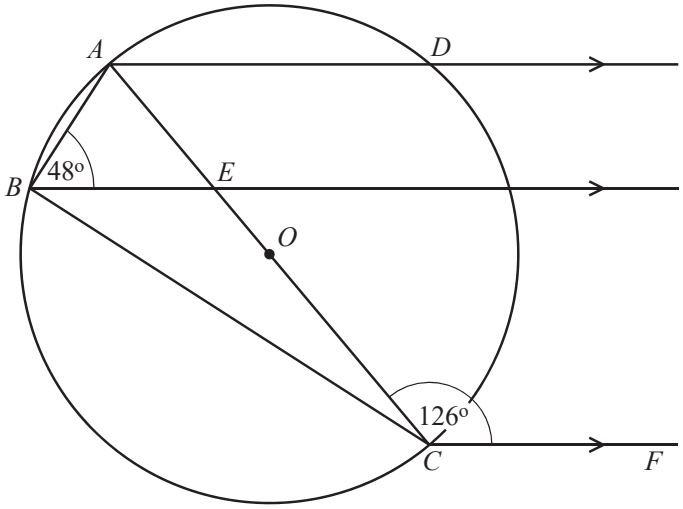
$\angle EBA = z^\circ = 52^\circ$

$x^\circ + y^\circ = \angle EBA = 52^\circ$

$x^\circ = 52^\circ - y^\circ = 52^\circ - 30^\circ = 22^\circ$

Hence, $w = 30, x = 22, y = 30$ and $z = 52$

[4]



NOT TO SCALE

A, B, C and D lie on a circle centre O. AC is a diameter of the circle.
AD, BE and CF are parallel lines. Angle $ABE = 48°$ and angle $ACF = 126°$.
Find

(a) angle DAE,

$$\angle AD \| CF$$
$$\angle DAE + \angle ACF = 180°$$
$$\angle DAE = 180° - 126° = 54°$$

[1]

(b) angle EBC,

$$\angle ABC = \angle ABE + \angle EBC = 90°$$
$$\angle EBC = 90° - 48° = 42°$$

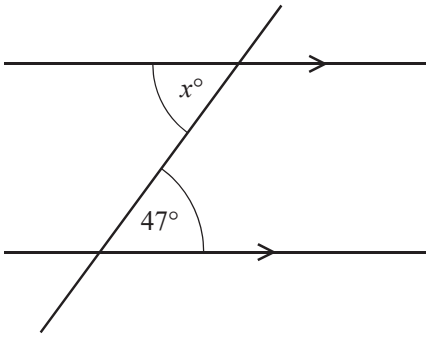
[1]

[1]

(c) angle BAE.

$$\therefore AD \| BE$$
$$\therefore \angle BAD + \angle ABE = 180°$$
$$\angle BAD = 180° - 48° = 132°$$
$$\angle BAE = \angle BAD - \angle DAE$$
$$= 132° - 54° = 78°$$

(a)

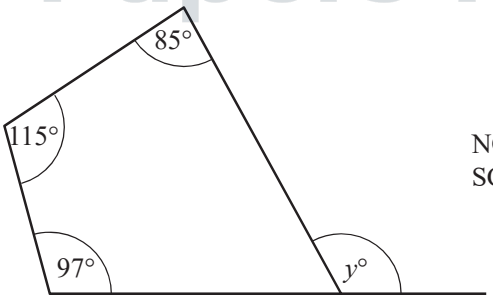


NOT TO SCALE

Find the value of x. [1]

The value of x is not to scale.

(b)

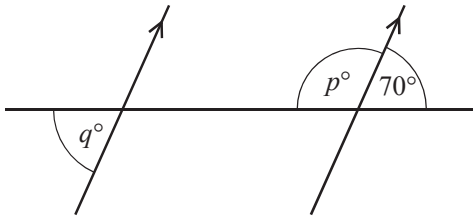


NOT TO SCALE

Find the value of y. [2]

$y = 117°$

Question 7



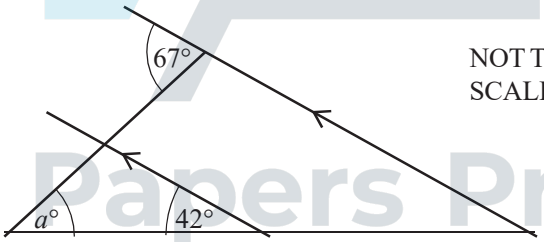
NOT TO SCALE

The diagram shows a straight line intersecting two parallel lines.

Find the value of p and the value of q. [2]

$p = 70^\circ$ and $q = 70^\circ$.

Question 8

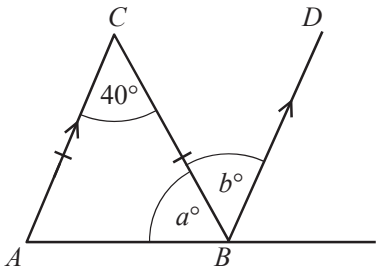


NOT TO SCALE

Find the value of a. [2]

$a = 42^\circ$

Question 9



NOT TO SCALE

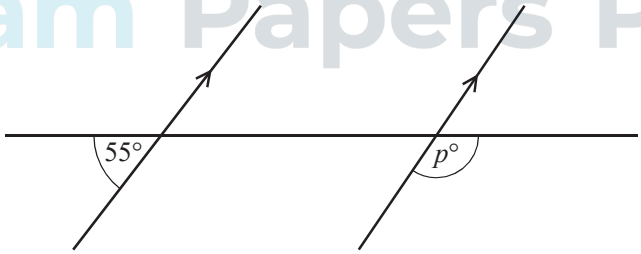
Triangle ABC is isosceles and AC is parallel to BD.

Find the value of a and the value of b.

$a = 70°$ $b = 70°$

[2]

Question 10

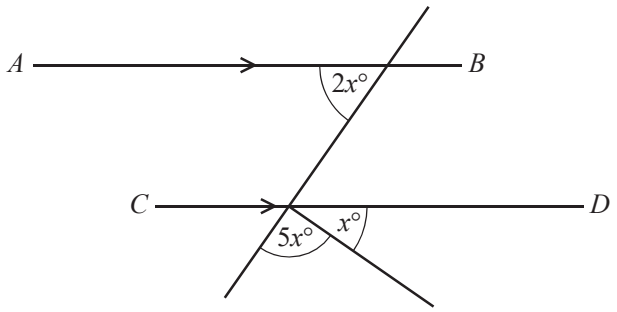


NOT TO SCALE

Find the value of p.

[2]

The value of p is 55.



NOT TO SCALE

AB is parallel to *CD*.
Calculate the value of *x*. [3]

x is 36 degrees.