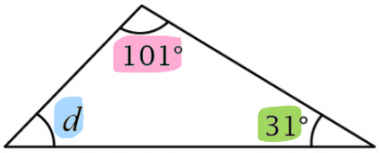
A scientific calculator is permitted throughout this exercise.

Ex 12.1

Name:

Worked Example for Simple Questions

Calculate the missing angle.



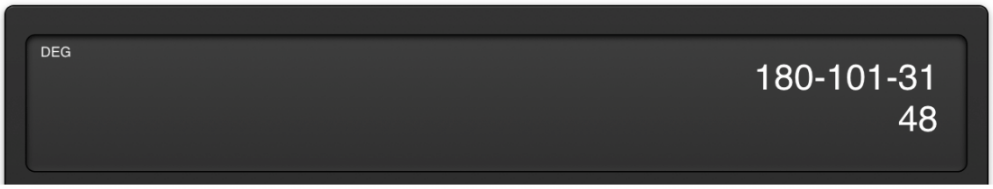
sum of all angles = 180°

d + 101 + 31 = 180

− 101 − 31 − 101 + 31

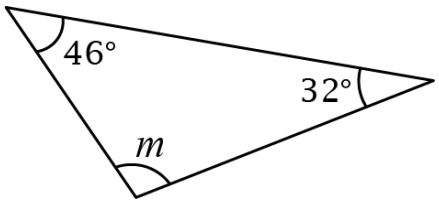
d = 48°

$d =$ 48 °



Question 1

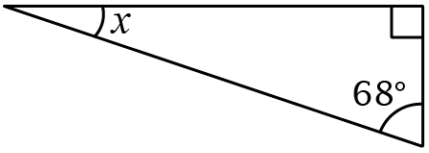
Calculate the missing angle.



$m =$ ☐ °

Question 2

Calculate the missing angle.



$x =$ ☐ °

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Question 3

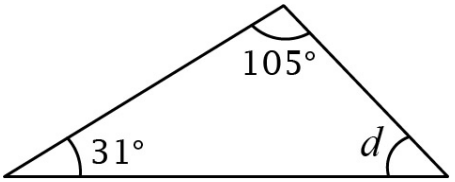
Calculate the missing angle.



$m =$ ☐ °

Question 4

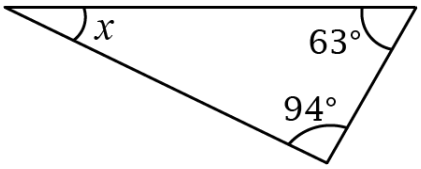
Calculate the missing angle.



$d =$ ☐ °

Question 5

Calculate the missing angle.



$x =$ ☐ °

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Worked Example for Standard Questions

A triangle has internal angles of 56° and 43°.

What is the size of the other internal angle?

other angle = 81 °

* sum of all angles = 180°

56 + 43 + ? = 180

−56

43 + ? = 124

−43

? = 81°

Question 6

A triangle has internal angles of 74° and 55°.

What is the size of the other internal angle?

other angle = ☐ °

Question 7

A triangle has internal angles of 62° and 35°.

What is the size of the other internal angle?

other angle = ☐ °

Question 8

A triangle has internal angles of 71° and 54°.

What is the size of the other internal angle?

other angle = ☐ °

Question 9

A triangle has internal angles of 93° and 41°.

What is the size of the other internal angle?

other angle = ☐ °

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Question 10

A triangle has internal angles of 82° and 36°.

What is the size of the other internal angle?

other angle = $\square$ $^\circ$

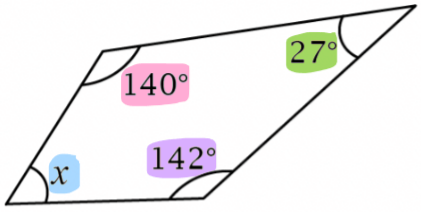
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Ex 12.3

A scientific calculator is permitted throughout this exercise.

Worked Example for Simple Questions

Calculate the missing angle.



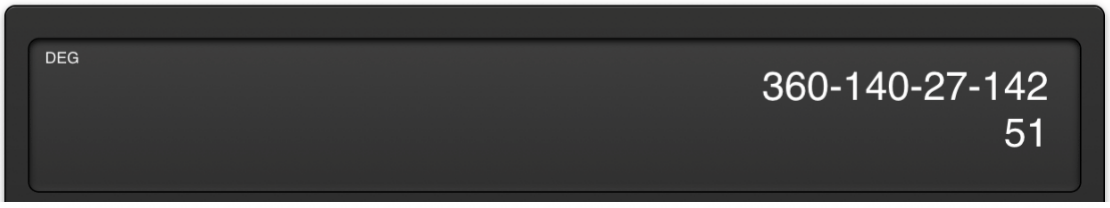
Sum of all angles = 360°

$x + 140 + 27 + 142 = 360$

$-140-27-142 \quad -140-27-142$

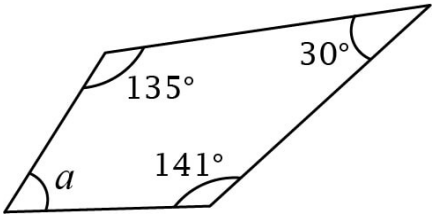
$x = 51°$

$x =$ 51 °



Question 1

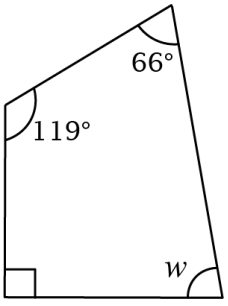
Calculate the missing angle.



$a =$ ____ °

Question 2

Calculate the missing angle.

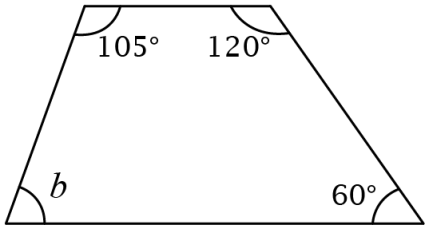


$w =$ ____ °

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Question 3

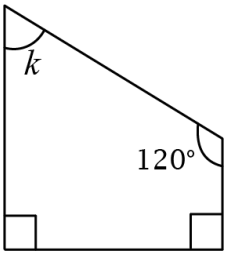
Calculate the missing angle.



$b =$ ☐ °

Question 4

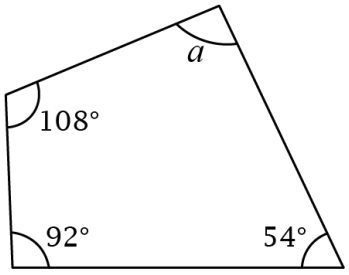
Calculate the missing angle.



$k =$ ☐ °

Question 5

Calculate the missing angle.



$a =$ ☐ °

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Worked Example for Standard Questions

A quadrilateral has internal angles of $67°$, $121°$ and $93°$.

What is the size of the other internal angle?

other angle = 79 °

* sum of all four angles in a quadrilateral is $360°$

$67° + 121° + 93° + ? = 360°$

$-67° - 121° - 93°$ $\quad -67° - 121° - 93°$

$? = 79°$

Check

360-67-121-93
79

Question 6

A quadrilateral has internal angles of $115°$, $19°$ and $86°$.

What is the size of the other internal angle?

other angle = ____ °

Question 7

A quadrilateral has internal angles of $43°$, $111°$ and $65°$.

What is the size of the other internal angle?

other angle = ____ °

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Quadrilateral Angle Sum

Question 8

A quadrilateral has internal angles of 255°, 69.5° and 20.5°.

What is the size of the other internal angle?

other angle = $\square$ $^\circ$

Question 9

A quadrilateral has internal angles of 93.9°, 112° and 67.1°.

What is the size of the other internal angle?

other angle = $\square$ $^\circ$

Question 10

A quadrilateral has internal angles of 70°, 132° and 81°.

What is the size of the other internal angle?

other angle = $\square$ $^\circ$

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Ex 12.5

A scientific calculator is permitted throughout this exercise.

Worked Example for Simple Questions

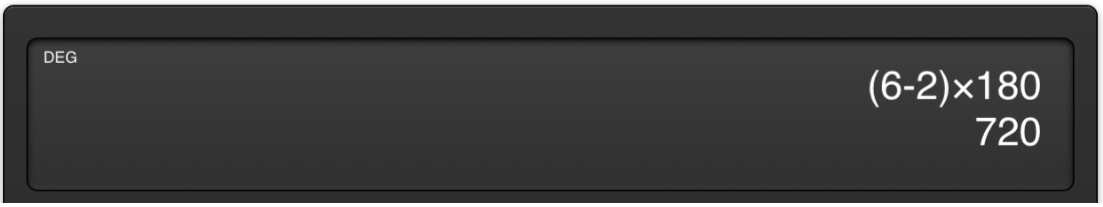
The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of a **hexagon** (6 sided shape)?

Interior angle sum $=$ 720 $^\circ$

Interior angle sum $= (n-2) \times 180$
$= (6-2) \times 180$
$= 720^\circ$



Question 1

The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of a **hexadecagon** (16-sided shape)?

Interior angle sum $=$ $\square$ $^\circ$

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Question 2

The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of an **icosagon** (20-sided shape)?

Interior angle sum $=$ $\square$ $^\circ$

Question 3

The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of a **heptagon** (7-sided shape)?

Interior angle sum $=$ $\square$ $^\circ$

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Question 4

The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of a **hendecagon** (11-sided shape)?

Interior angle sum $=$ $\square$ $^\circ$

Question 5

The interior angle sum for a polygon with n sides is given by:

$$\text{Interior angle sum} = (n-2) \times 180$$

What is the interior angle sum of a **tridecagon** (13-sided shape)?

Interior angle sum $=$ $\square$ $^\circ$

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Worked Example for Standard Questions

A **pentagon** is a polygon with 5 sides.

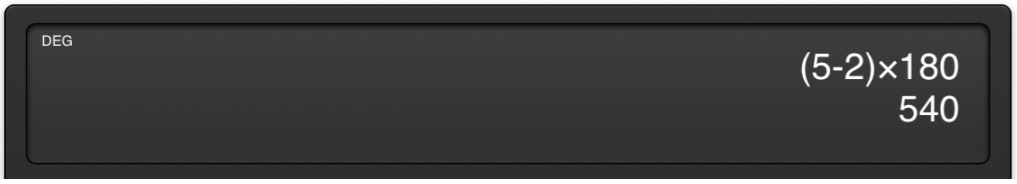
What is its interior angle sum?

Interior angle sum = 540 °

* interior angle sum = $(n-2)\times 180$
where n = the number of sides

$(n-2)\times 180$
$=(5-2)\times 180$
$=540°$

Check



Question 6

A **nonagon** is a polygon with 9 sides.

What is its interior angle sum?

Interior angle sum = ____ °

Question 7

A **hexagon** is a polygon with 6 sides.

What is its interior angle sum?

Interior angle sum = ____ °

Question 8

A **hendecagon** is a polygon with 11 sides.

What is its interior angle sum?

Interior angle sum = ____ °

Question 9

A **dodecagon** is a polygon with 12 sides.

What is its interior angle sum?

Interior angle sum = ____ °

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Question 10

A **tridecagon** is a polygon with 13 sides.

What is its interior angle sum?

Interior angle sum $=$ $\square$ $^\circ$

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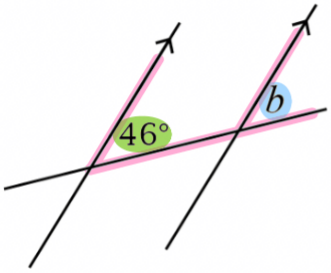
Opposite and Corresponding Angles

Ex 12.7

No calculators are permitted in this exercise.

Worked Example for Simple Questions

Find the size of the unknown angle.



*Angle b and 46° are corresponding angles.

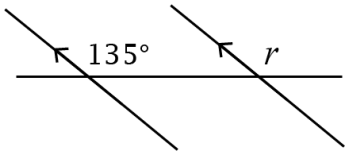
*corresponding angles are equal.

So, b = 46°

$b =$ 46 °

Question 1

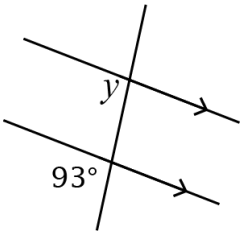
Find the size of the unknown angle.



$r =$ ☐ °

Question 2

Find the size of the unknown angle.



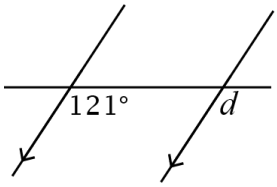
$y =$ ☐ °

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Opposite and Corresponding Angles

Question 3

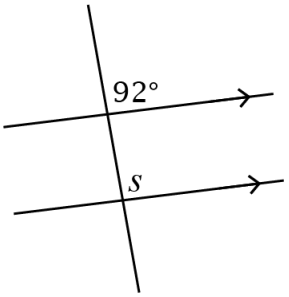
Find the size of the unknown angle.



$d =$ ☐ °

Question 4

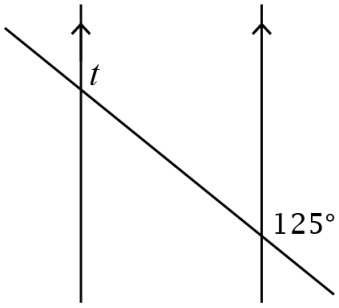
Find the size of the unknown angle.



$s =$ ☐ °

Question 5

Find the size of the unknown angle.

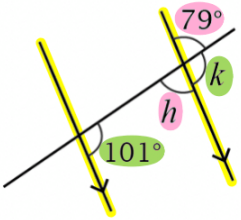


$t =$ ☐ °

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Worked Example for Standard Questions

Write the size of the unknown angles.



$h =$ 79 °

$k =$ 101 °

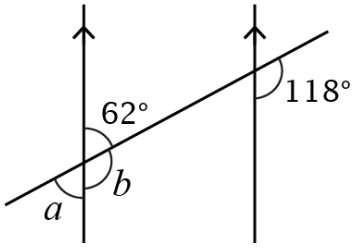
We can use properties of angles in parallel lines:

* Angle h and 79° are vertically opposite angles. They are the same size.

* Angle k and 101° are corresponding angles. They are the same size.

Question 6

Write the size of the unknown angles.

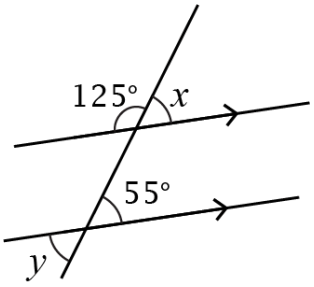


$a =$ ☐ °

$b =$ ☐ °

Question 7

Write the size of the unknown angles.



$x =$ ☐ °

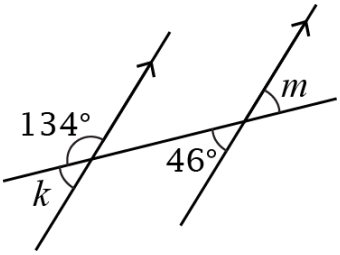
$y =$ ☐ °

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Opposite and Corresponding Angles

Question 8

Write the size of the unknown angles.

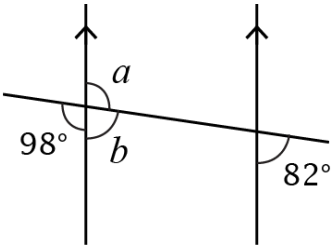


$k =$ ☐ °

$m =$ ☐ °

Question 9

Write the size of the unknown angles.

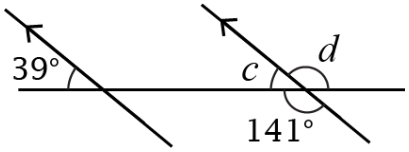


$a =$ ☐ °

$b =$ ☐ °

Question 10

Write the size of the unknown angles.



$c =$ ☐ °

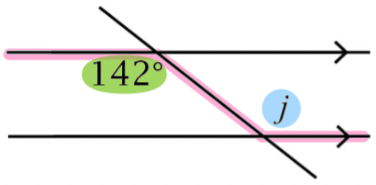
$d =$ ☐ °

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Ex 12.9

No calculators are permitted in this exercise.

Worked Example for Simple Questions

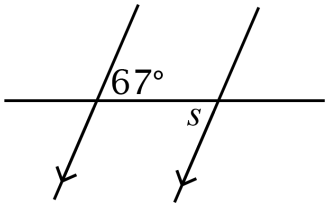


* Angle j and $142°$ are alternate angles
* Alternate angles are equal.

So $j = 142°$

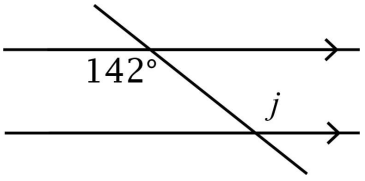
The size of angle j is 142 °

Question 1



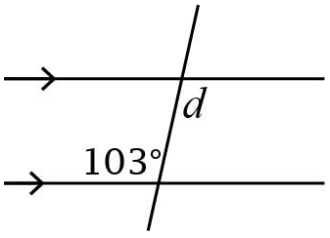
The size of angle s is ☐ °

Question 2



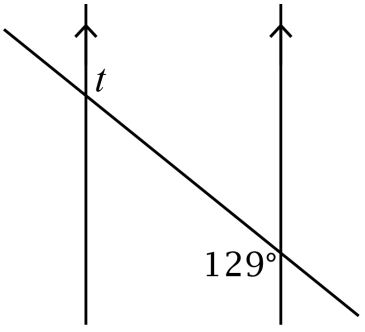
The size of angle j is ☐ °

Question 3



The size of angle d is ☐ °

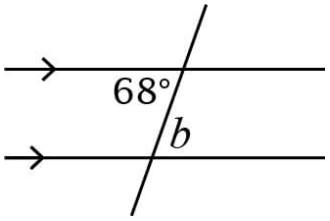
Question 4



The size of angle t is ☐ °

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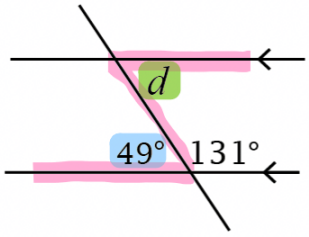
Question 5



The size of angle b is $\square$ °

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Worked Example for Standard Questions

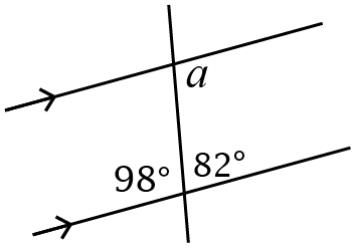


* Angle d and $49°$ are alternate angles
* Alternate angles are equal

so $d = 49°$

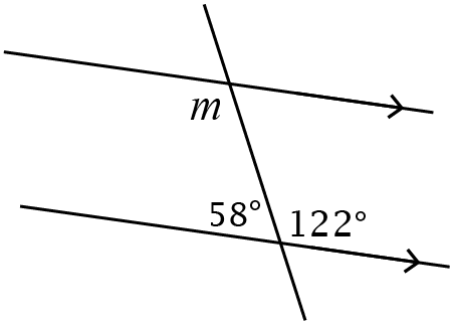
The size of angle d is 49 °

Question 6



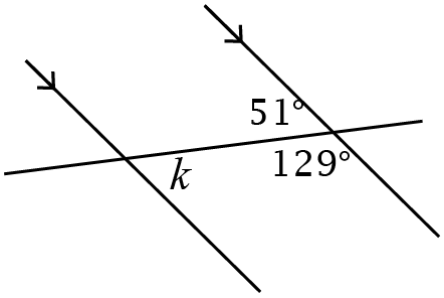
The size of angle a is ☐ °

Question 7



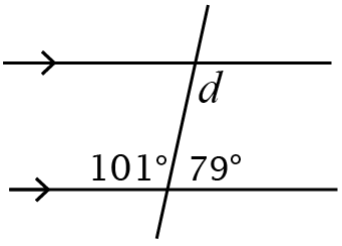
The size of angle m is ☐ °

Question 8



The size of angle k is ☐ °

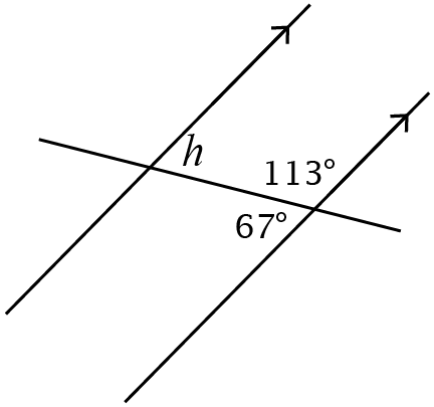
Question 9



The size of angle d is ☐ °

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Question 10



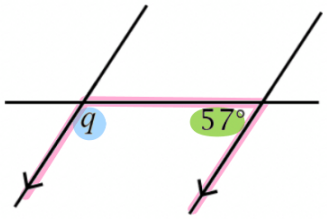
The size of angle h is $\square$ °

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Ex 12.11

A scientific calculator is permitted throughout this exercise.

Worked Example for Simple Questions



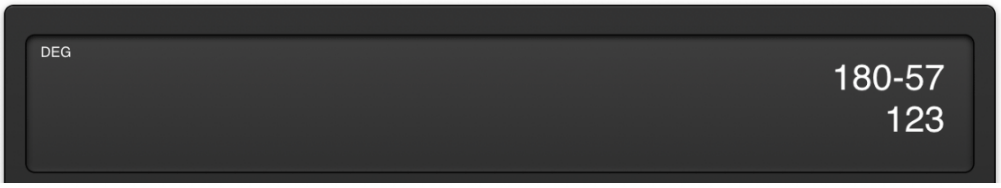
* Angle q and $57°$ are co-interior angles.
* co-interior angles sum to $180°$

$q + 57 = 180$

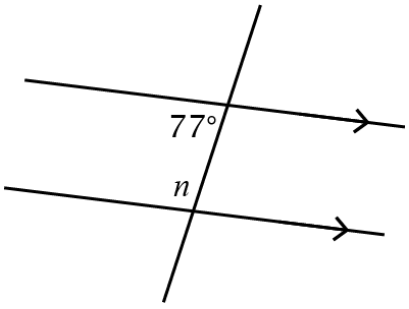
$-57 \quad -57$

$q = 123°$

The size of angle q is 123 °

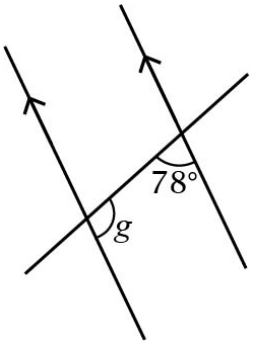


Question 1



The size of angle n is ____ °

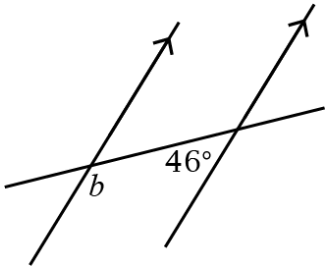
Question 2



The size of angle g is ____ °

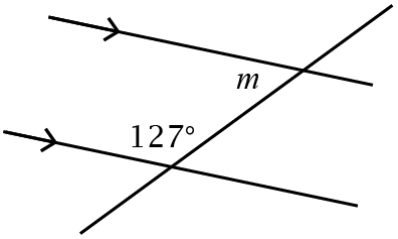
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Question 3



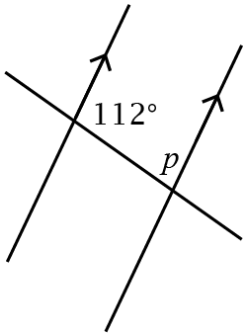
The size of angle b is $\square$ °

Question 4



The size of angle m is $\square$ °

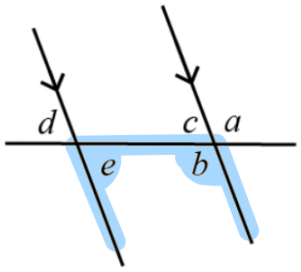
Question 5



The size of angle p is $\square$ °

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Worked Example for Standard Questions



Which two angles are co-interior?

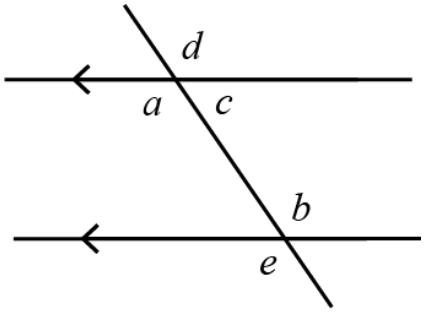
* Co-interior angles are angles inside parallel lines.
* They make a "C" shape.

Angles b and e are co-interior.

A	B	C	D
c and e	a and b	b and e	c and d

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Question 6



Which two angles are co-interior?

Circle the correct option

A

b and c

B

d and e

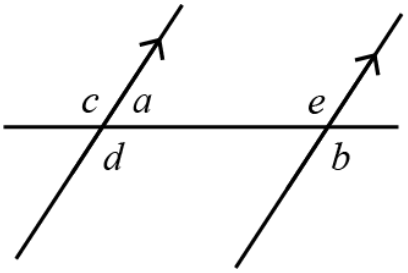
C

a and b

D

a and c

Question 7



Which two angles are co-interior?

Circle the correct option

A

a and d

B

b and c

C

a and e

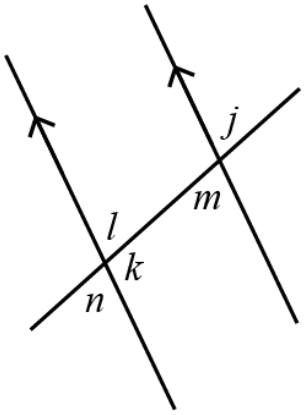
D

d and e

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Co-interior Angles

Question 8



Which two angles are co-interior?

Circle the correct option

A

l and m

B

j and n

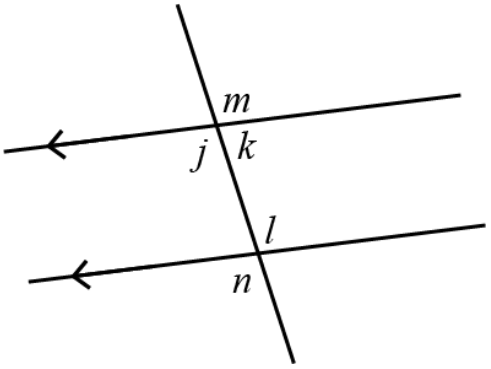
C

k and m

D

n and m

Question 9



Which two angles are co-interior?

Circle the correct option

A

k and l

B

m and n

C

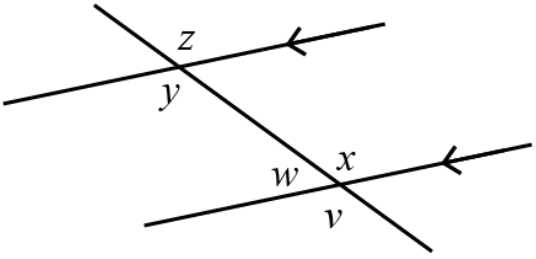
j and l

D

l and n

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Question 10



Which two angles are co-interior?

Circle the correct option

A

w and x

B

y and z

C

x and v

D

w and y

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