

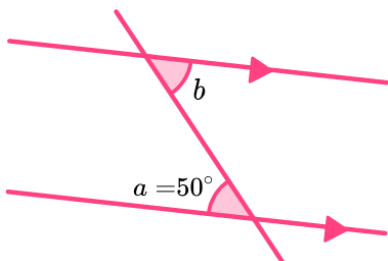
Alternate Angles - Worksheet

Skill

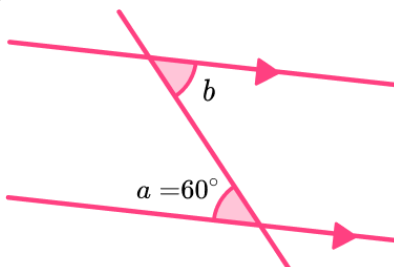
Group A - Alternate angles

Find the missing angles:

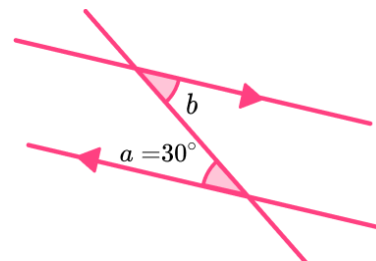
1)



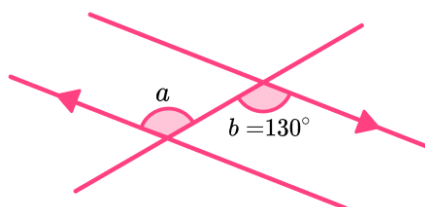
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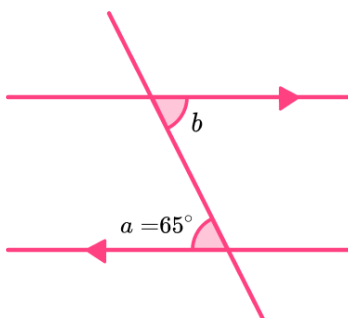
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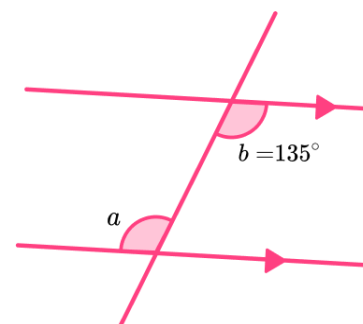
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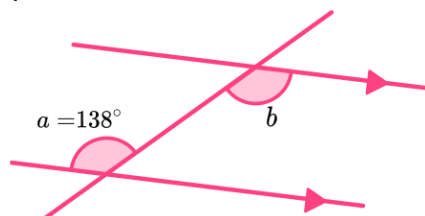
5)



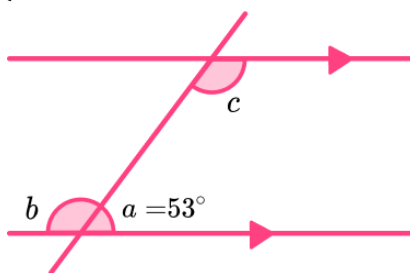
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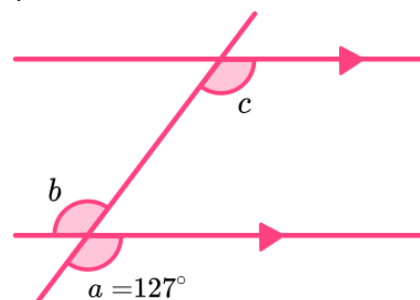
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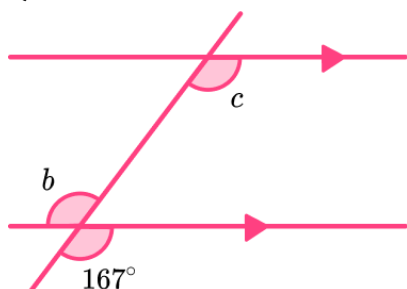
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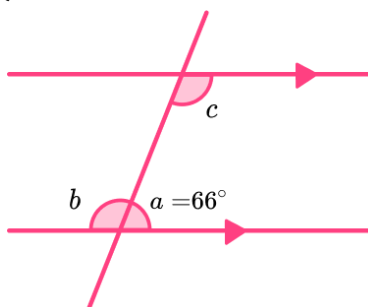
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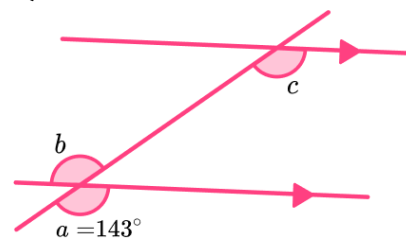
10)



11)



12)

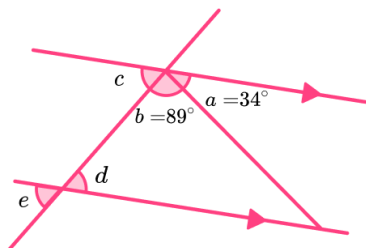


Alternate Angles - Worksheet

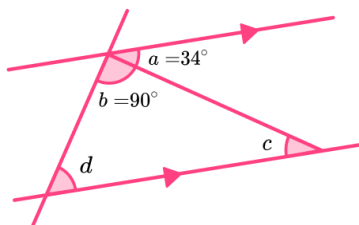
Group B - Alternate angles in triangles and quadrilaterals

Find the missing angles:

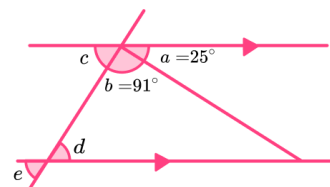
1)



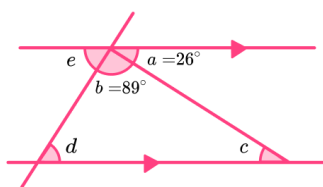
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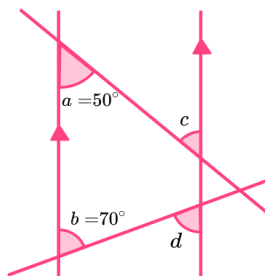
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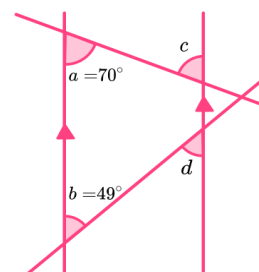
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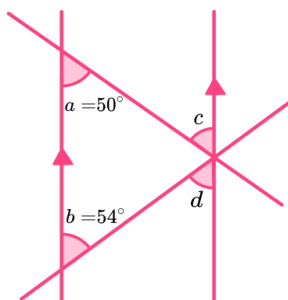
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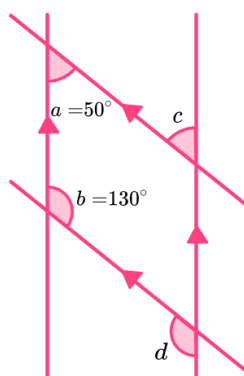
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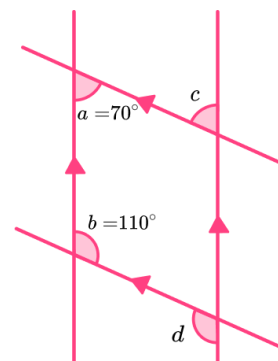
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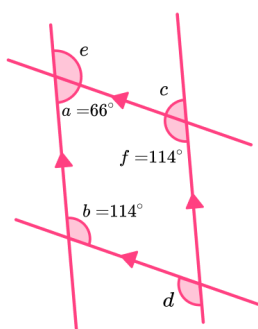
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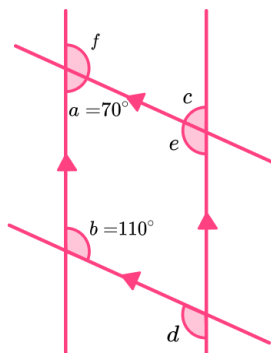
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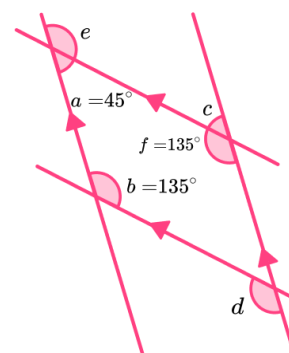
10)



11)



12)

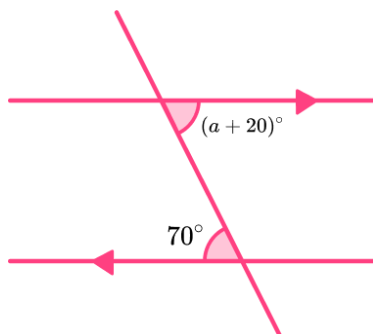


Alternate Angles - Worksheet

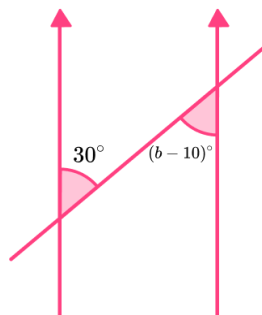
Group C - Algebraic alternate angles

Find the unknown variable in each question:

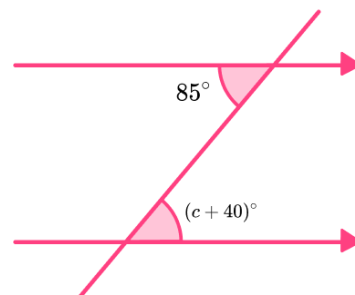
1)



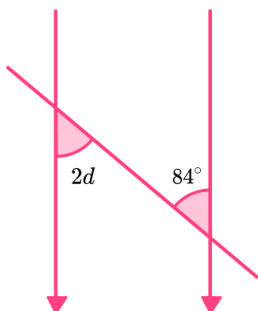
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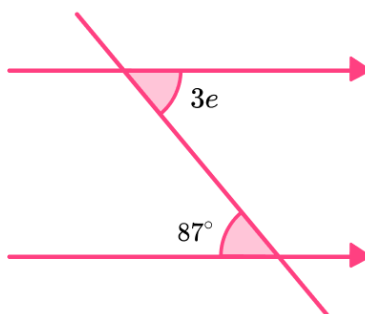
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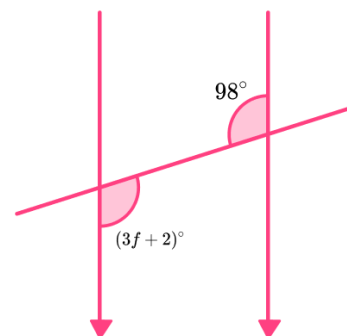
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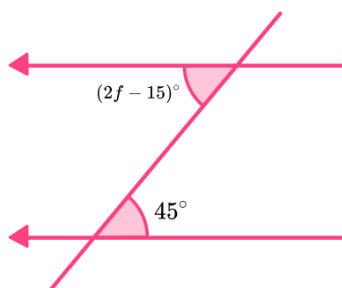
5)



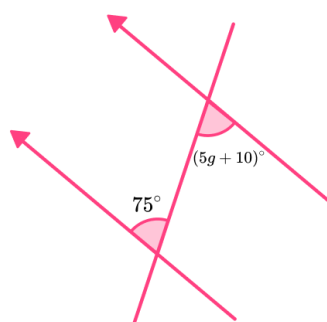
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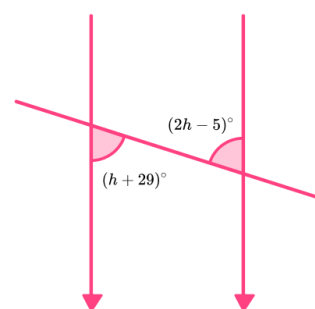
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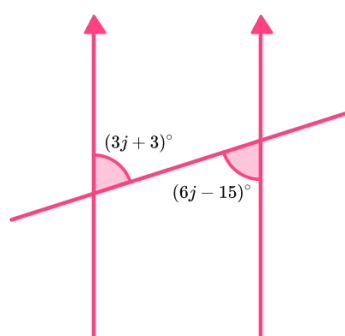
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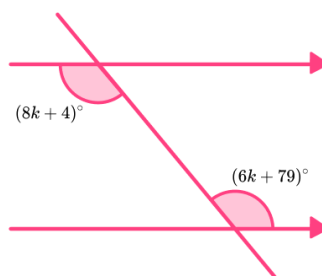
9)



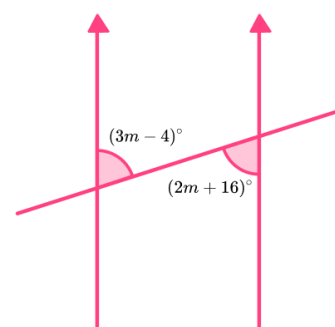
10)



11)



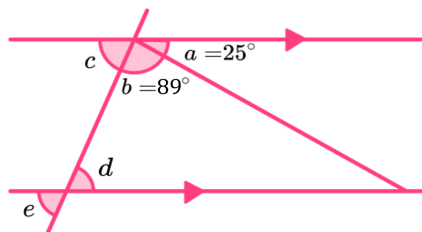
12)



Alternate Angles - Worksheet

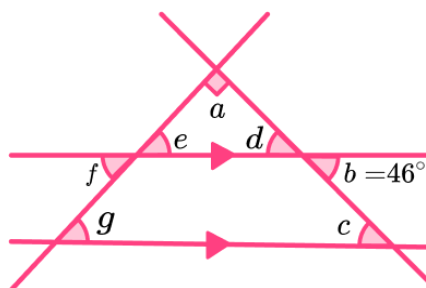
Applied

- 1) Find the missing angles.



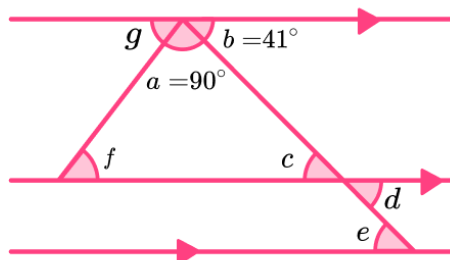
Give reasons for your answers.

- 2) Find the missing angles.



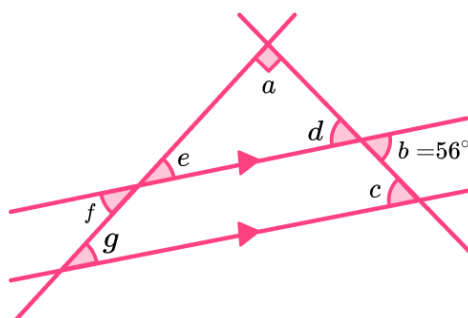
Give reasons for your answers.

- 3) Find the missing angles.



Give reasons for your answers.

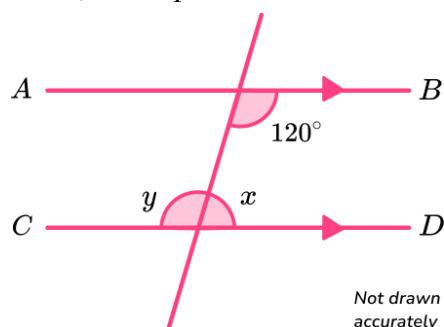
- 4) Find the missing angles.



Give reasons for your answers.

Alternate Angles - Exam Questions

- 1) (a) In the diagram below, AB is parallel to line CD



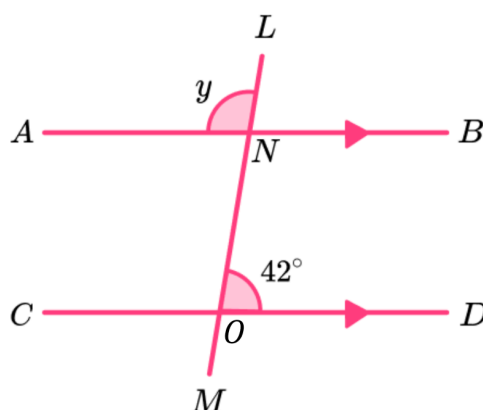
Find the value of y . Give a reason for your answer.

.....
(2)

- (b) Find the value of x . Give a reason for your answer.

.....
(2)
(4 marks)

- 2) AB is parallel to CD . LM is a straight line. Angle $LOD = 42^\circ$.

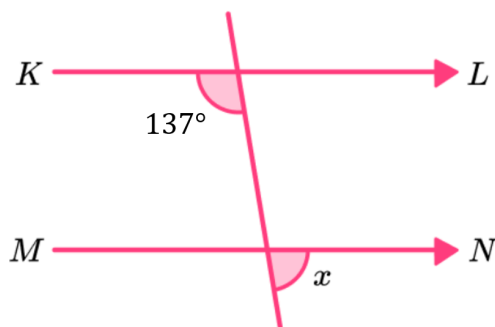


Work out the size of the angle marked y .

.....
(2 marks)

Alternate Angles - Exam Questions

3) (a)



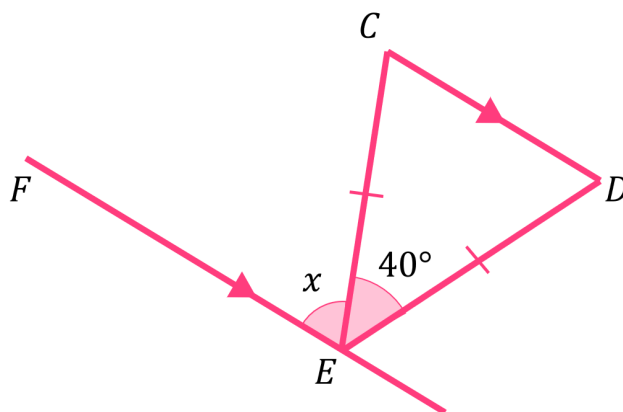
Work out the size of the angle marked x .

.....
(2)

(b) Give reasons for your answer.

.....
(1)
(3 marks)

4)



Triangle CDE is isosceles.

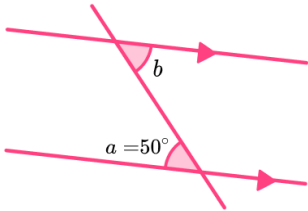
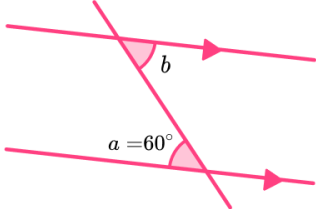
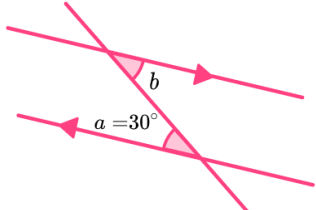
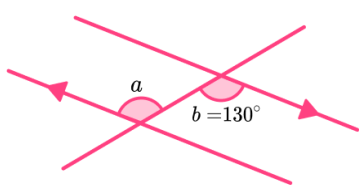
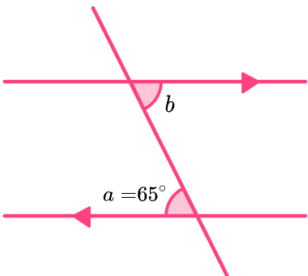
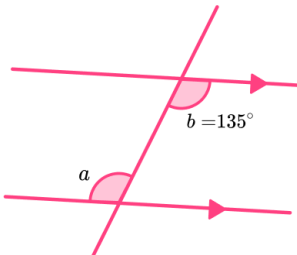
CD is parallel to FE.

Angle $CED = 40^\circ$.

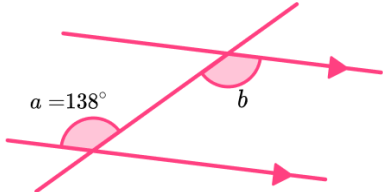
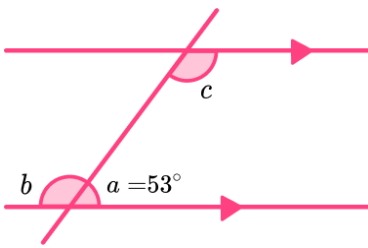
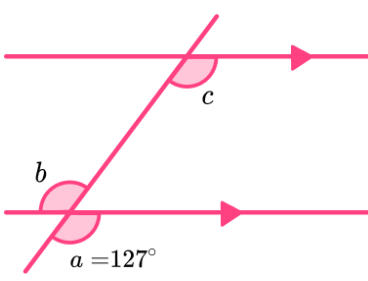
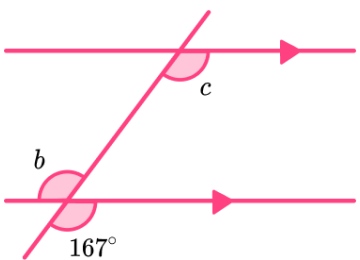
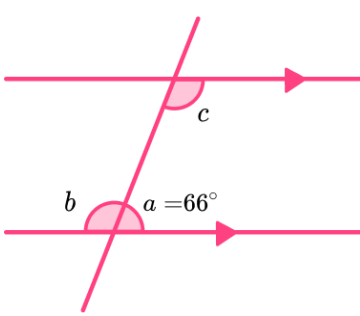
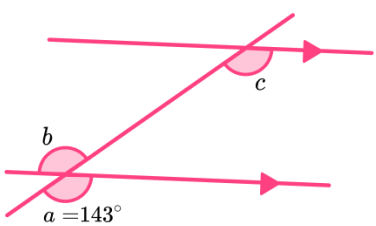
Work out the size of angle x .

.....
(3 marks)

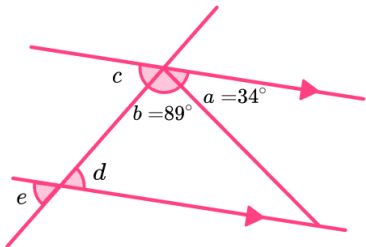
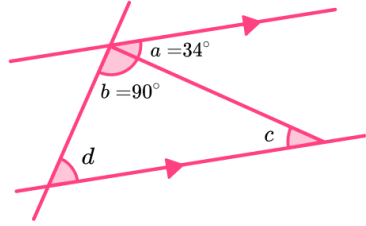
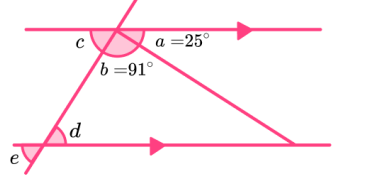
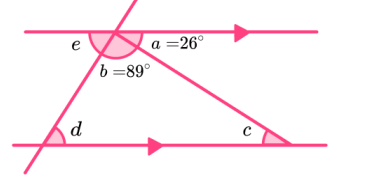
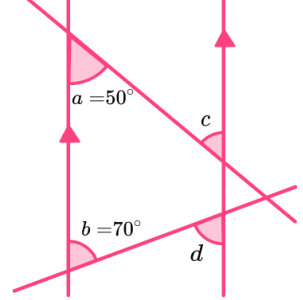
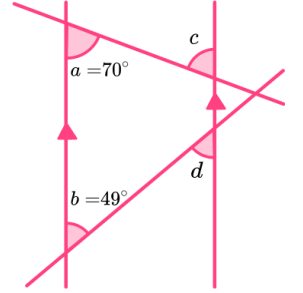
Alternate Angles - Answers

	Question	Answer
	Skill Questions	
Group A	Find the missing angles:	
1)		1) $b = 50^\circ$
2)		2) $b = 60^\circ$
3)		3) $b = 30^\circ$
4)		4) $a = 130^\circ$
5)		5) $b = 65^\circ$
6)		6) $a = 135^\circ$

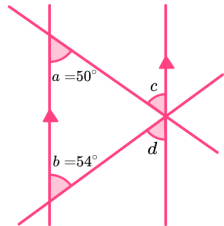
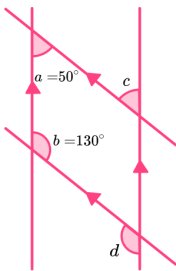
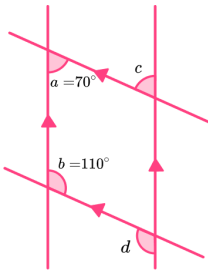
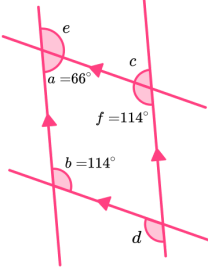
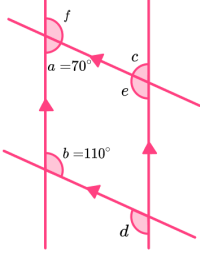
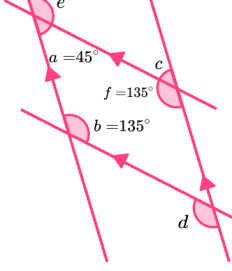
Alternate Angles - Answers

Group A contd	7)  8)  9)  10)  11)  12) 	7) $b = 138^\circ$ 8) $b = 127^\circ, c = 127^\circ$ 9) $b = 127^\circ, c = 127^\circ$ 10) $b = 167^\circ, c = 167^\circ$ 11) $b = 114^\circ, c = 114^\circ$ 12) $b = 143^\circ, c = 143^\circ$
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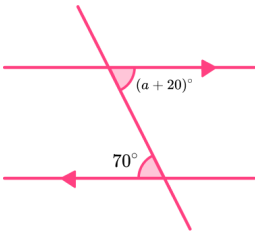
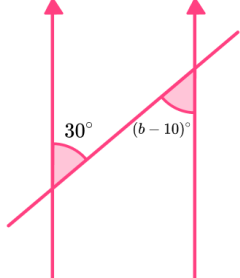
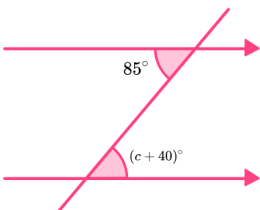
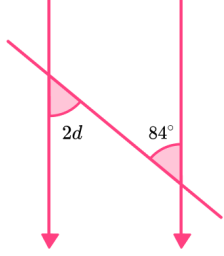
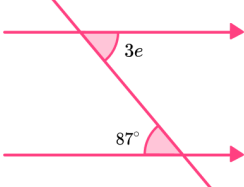
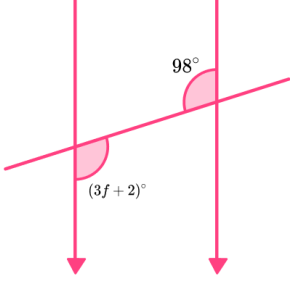
Alternate Angles - Answers

Group B	Find the missing angles:	
	1) 	1) $c = 57^\circ$, $d = 57^\circ$, $e = 57^\circ$
	2) 	2) $c = 34^\circ$, $d = 56^\circ$
	3) 	3) $c = 64^\circ$, $d = 64^\circ$, $e = 64^\circ$
	4) 	4) $a = 65^\circ$, $d = 65^\circ$, $c = 26^\circ$
	5) 	5) $c = 50^\circ$, $d = 70^\circ$
	6) 	6) $c = 70^\circ$, $d = 49^\circ$

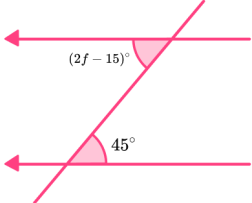
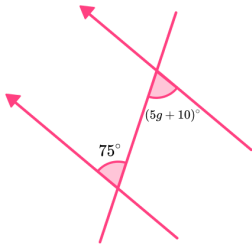
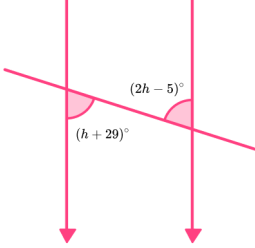
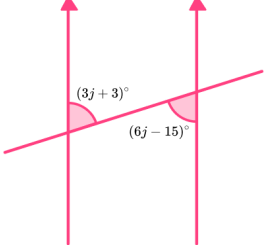
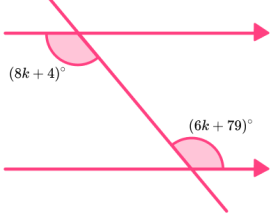
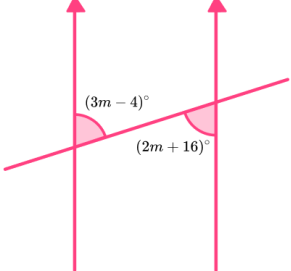
Alternate Angles - Answers

Group B contd	7) 	7) $c = 50^\circ$, $d = 54^\circ$
	8) 	8) $c = 50^\circ$, $d = 130^\circ$
	9) 	9) $c = 70^\circ$, $d = 110^\circ$
	10) 	10) $c = 66^\circ$, $d = 114^\circ$, $e = 114^\circ$
	11) 	11) $c = 70^\circ$, $d = 110^\circ$, $e = 110^\circ$, $f = 110^\circ$
	12) 	12) $c = 45^\circ$, $d = 135^\circ$, $e = 135^\circ$

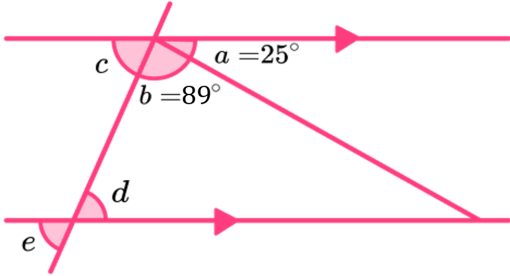
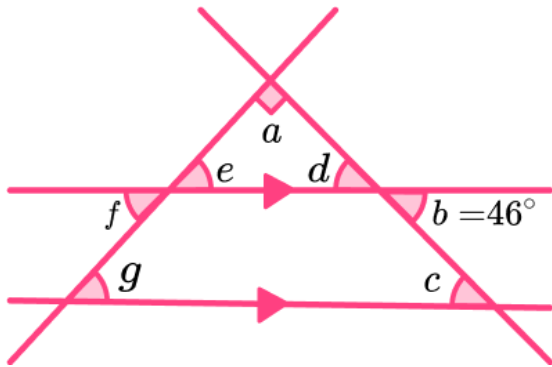
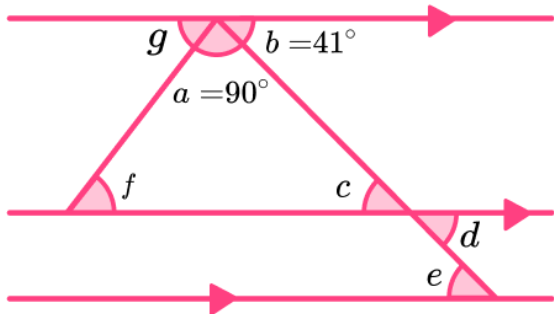
Alternate Angles - Answers

Group C	Find the unknown variable in each question:	
	1) 	1) $a = 50$
	2) 	2) $b = 40$
	3) 	3) $c = 45$
	4) 	4) $d = 42$
	5) 	5) $e = 29$
	6) 	6) $f = 32$

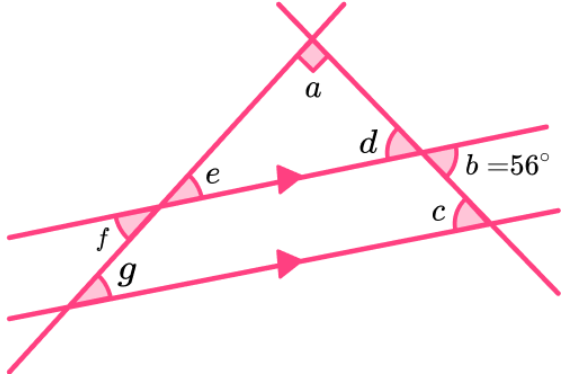
Alternate Angles - Answers

Group C contd	7)  8)  9)  10)  11)  12) 	7) $f = 30$ 8) $g = 13$ 9) $h = 34$ 10) $j = 6$ 11) $k = 37.5$ 12) $m = 20$
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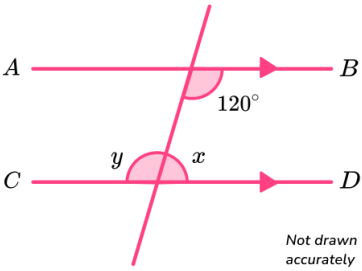
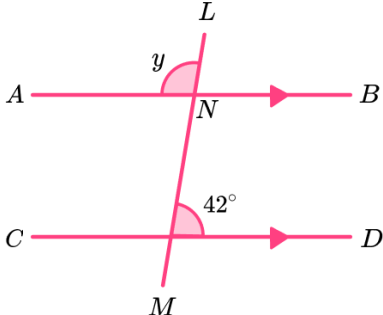
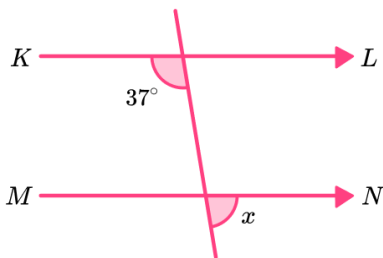
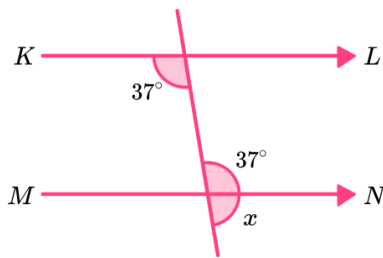
Alternate Angles - Answers

	Question	Answer
	Applied Questions	
1)	Find the missing angles.  Give reasons for your answers.	$c = 66^\circ$ Angles on a straight line add to 180° $d = 66^\circ$ Alternate angles are equal $e = 66^\circ$ Vertically opposite angles are equal
2)	Find the missing angles.  Give reasons for your answers.	$a = 90^\circ$ $c = 46^\circ$ Alternate angles are equal $d = 46^\circ$ Vertically opposite angles are equal $e = 44^\circ$ Angles in a triangle add to 180° $f = 44^\circ$ Vertically opposite angles are equal $g = 44^\circ$ Alternate angles are equal
3)	Find the missing angles.  Give reasons for your answers.	$c = 41^\circ$ Alternate angles are equal $d = 41^\circ$ Vertically opposite angles are equal $e = 41^\circ$ Alternate angles are equal $f = 49^\circ$ Angles in a triangle add to 180° $g = 49^\circ$ Angles on a straight line add to 180°

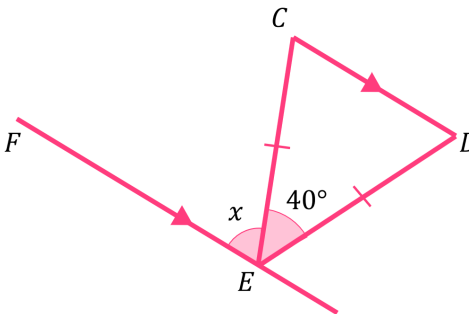
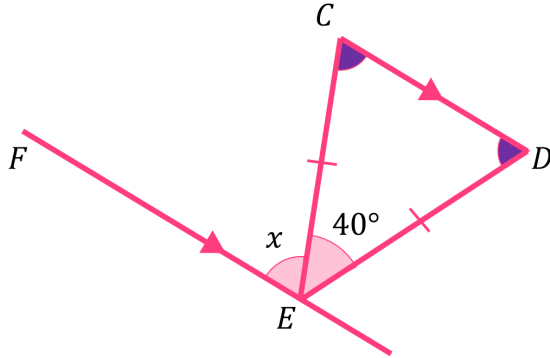
Alternate Angles - Answers

4)	Find the missing angles.  Give reasons for your answers.	$a = 90^\circ$ $c = 56^\circ$ Alternate angles are equal $d = 56^\circ$ Vertically opposite angles are equal $e = 34^\circ$ Angles in a triangle add to 180° $f = 34^\circ$ Vertically opposite angles are equal $g = 34^\circ$ Alternate angles are equal
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Alternate Angles - Mark Scheme

	Question	Answer	
	Exam Questions		
1) (a)	In the diagram below, AB is parallel to line CD  Find the value of y. Give a reason for your answer.	(a) 120° Alternate angles are equal	(1) (1)
(b)	Find the value of x. Give a reason for your answer.	(b) 60° Angles on a straight line add to 180°	(1) (1)
2)	AB is parallel to CD. LM is a straight line. Angle $LMD = 42^\circ$.  Work out the size of the angle marked y.	$180 - 42$ $y = 138^\circ$	(1) (1)
3) (a)	 Work out the size of the angle marked x.	 $180 - 37$ $y = 143^\circ$	(1) (1)
(b)	Give reasons for your answer.	(b) Alternate angles are equal and angles on a straight line add to 180° or alternatives which fit the workings.	(1)

Alternate Angles - Mark Scheme

4)	 Triangle CDE is isosceles. CD is parallel to FE. Angle $CED = 40^\circ$. Work out the size of angle x.	 $180 - 40 = 140$ $140 \div 2 = 70$ $x = 70^\circ$	(1) (1) (1)
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