MATHEMATICS · GRADES 7-9

Angles Formed by Parallel Lines

Difficulty level: Intermediate

Mathematics: Grades 7-9

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Overview of the concept

This is how you work out the matching angles where a road crosses two parallel streets, or where a ladder leans across parallel rungs. Parallel lines make matching angles equal, so one angle you know can unlock all the others in the picture. Builders and surveyors use this every time they check that two edges are truly parallel.

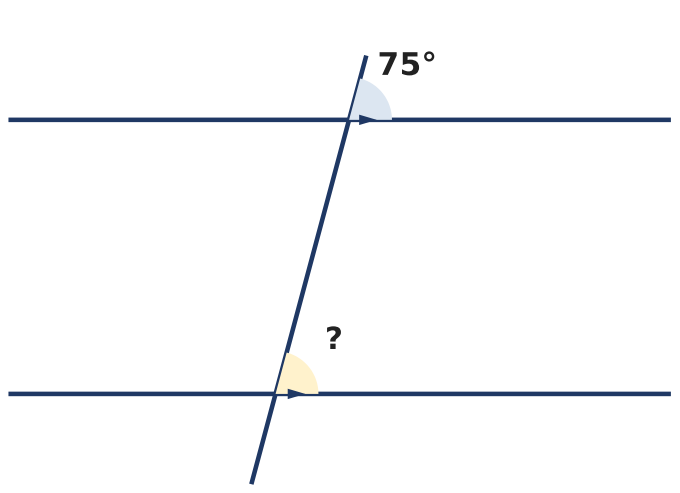


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Worked examples

EXAMPLE 1

Q A transversal crosses parallel lines. One angle is 75 degrees. Find its corresponding angle.



SOLUTION

Find the angle in the same corner position at the other crossing.

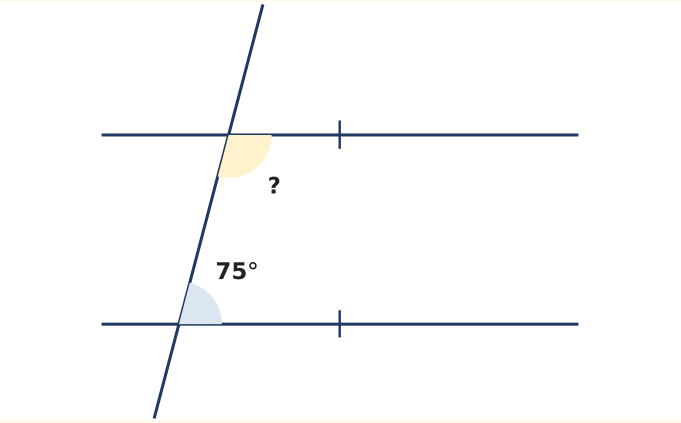
Corresponding angles on parallel lines are equal.

The corresponding angle is 75 degrees.

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EXAMPLE 2

Q **A transversal crosses parallel lines. One angle is 75 degrees. Find the interior angle on the same side.**



SOLUTION

Interior angles on the same side add to 180 degrees.

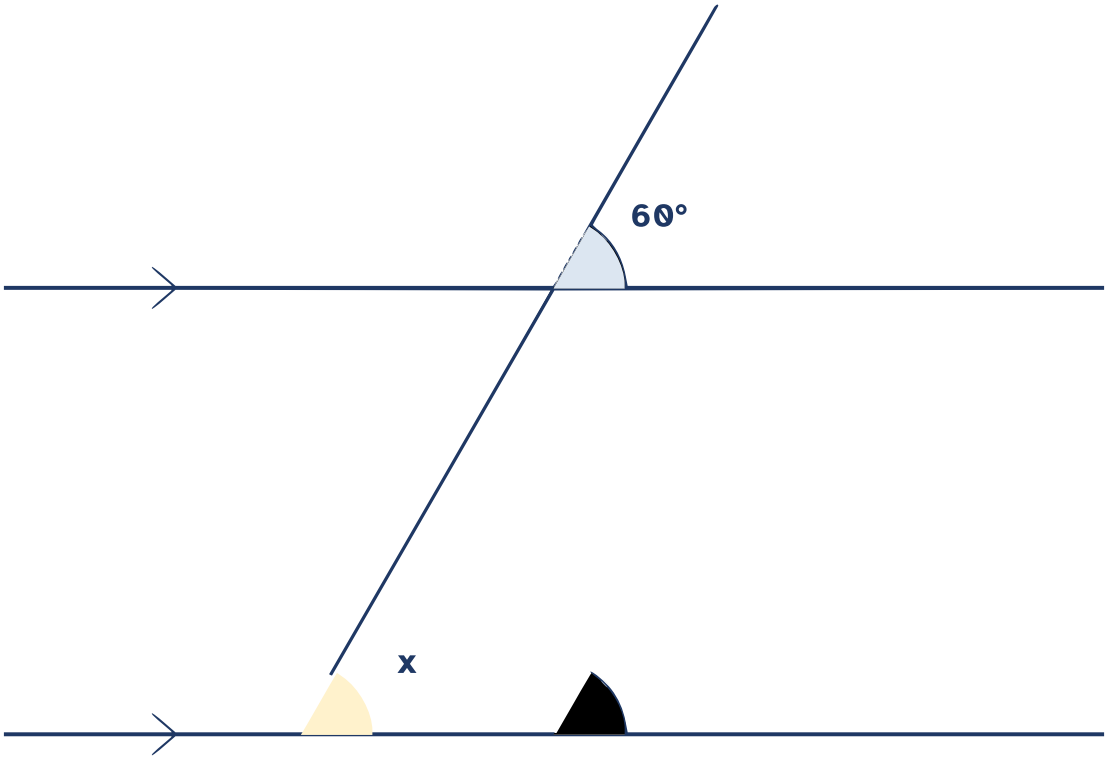
Subtract: 180 - 75 = 105

The interior angle is 105 degrees.

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Practice questions

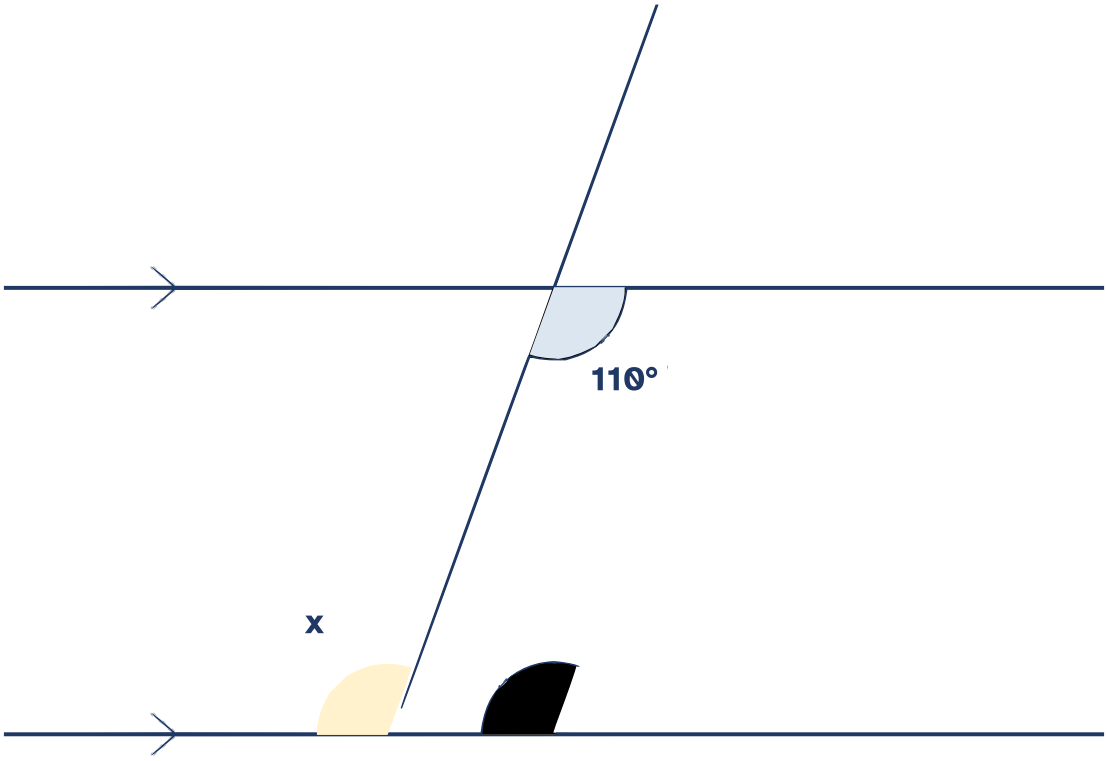
1 Two railway tracks run parallel, and a road crosses them in the diagram. Find the angle marked x, which is in the same corner as the labelled angle at the other track.



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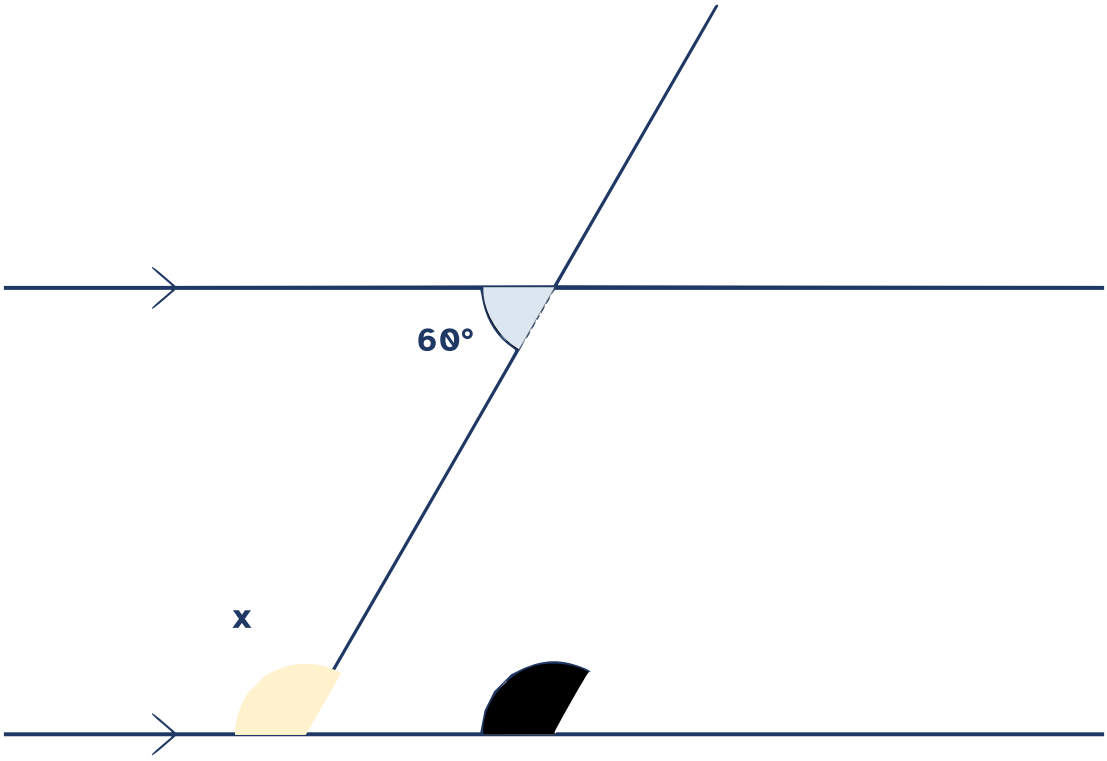
2 **Two parallel shelves are cut by a sloping support in the diagram. Find the angle marked x, which is on the opposite side of the support and between the shelves.**



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3 Two parallel lines of a notebook page are cut by a diagonal line in the diagram. Find the angle marked x, which is between the lines on the same side as the labelled angle.



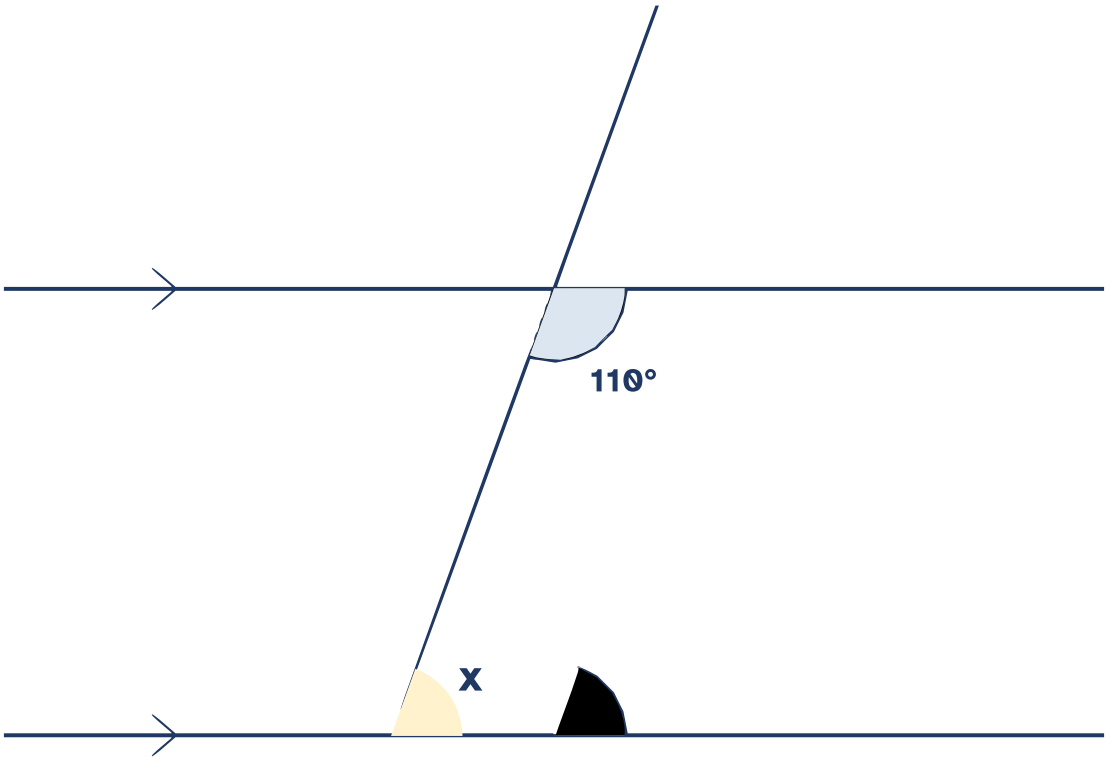
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4

Two parallel road lanes are crossed by a diagonal path in the diagram. The labelled angle is 110 degrees. The angle marked x is between the lines on the same side as the labelled angle. What do the labelled angle and x add to?

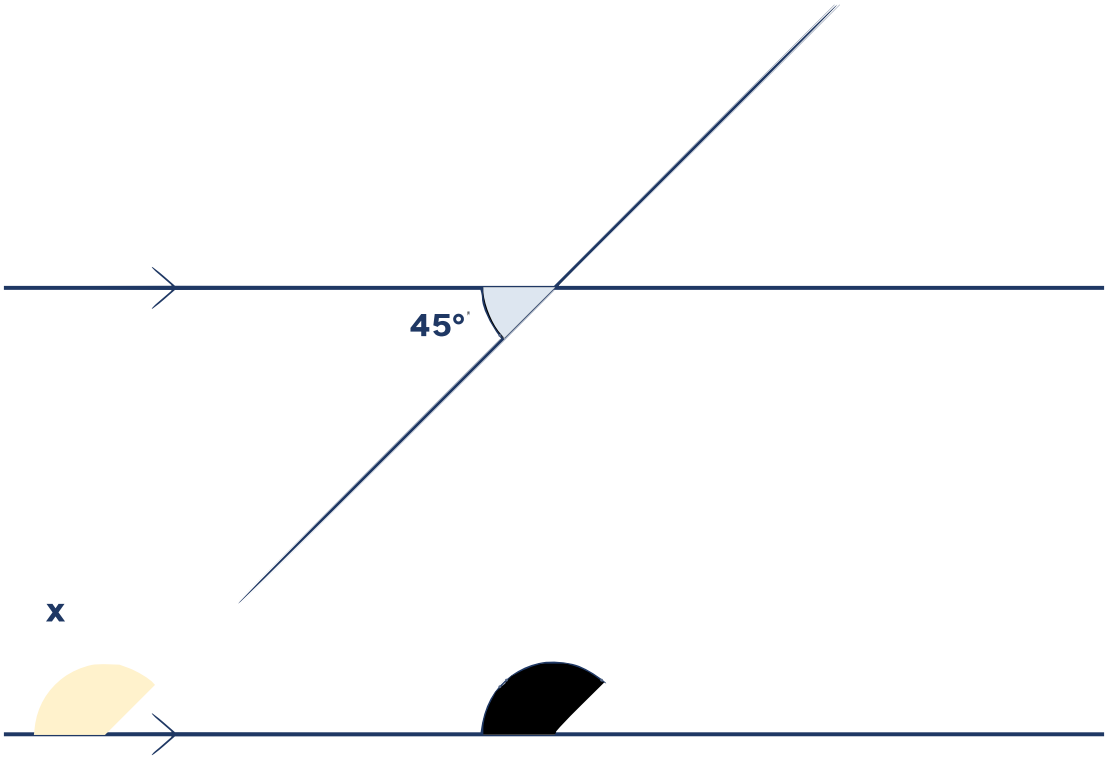


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5 Two parallel rungs of a ladder are cut by a side rail in the diagram. Find the angle marked x, which is between the rungs on the same side as the labelled angle.

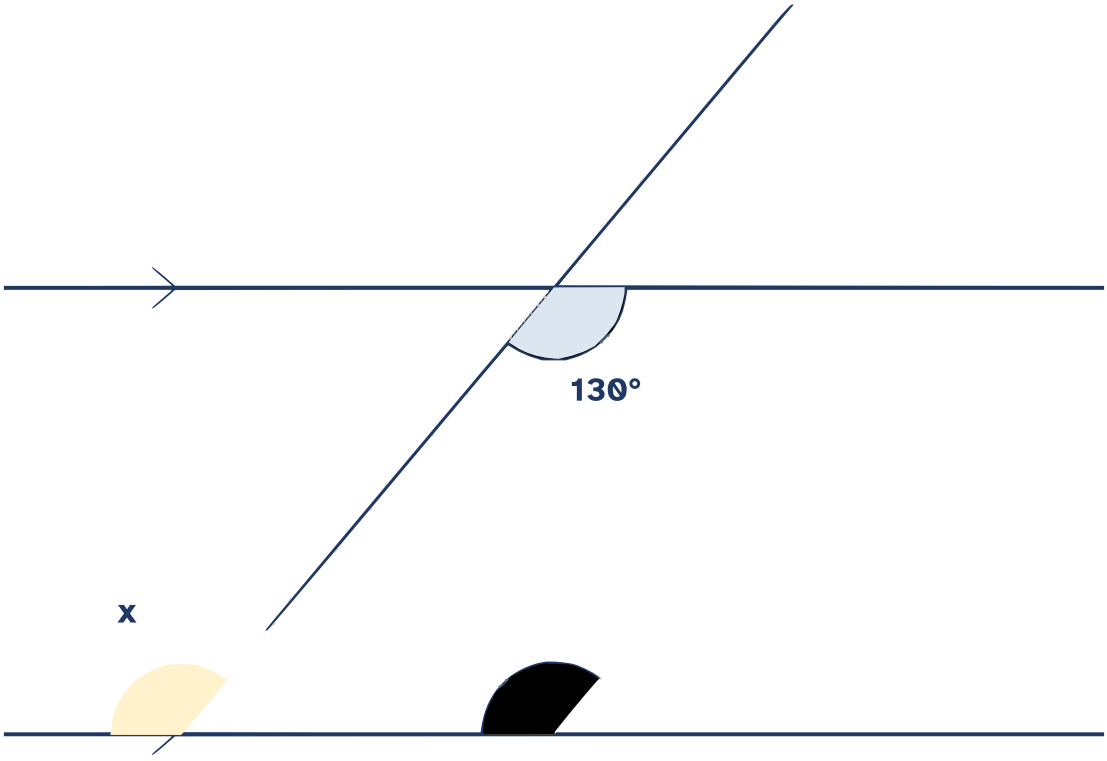


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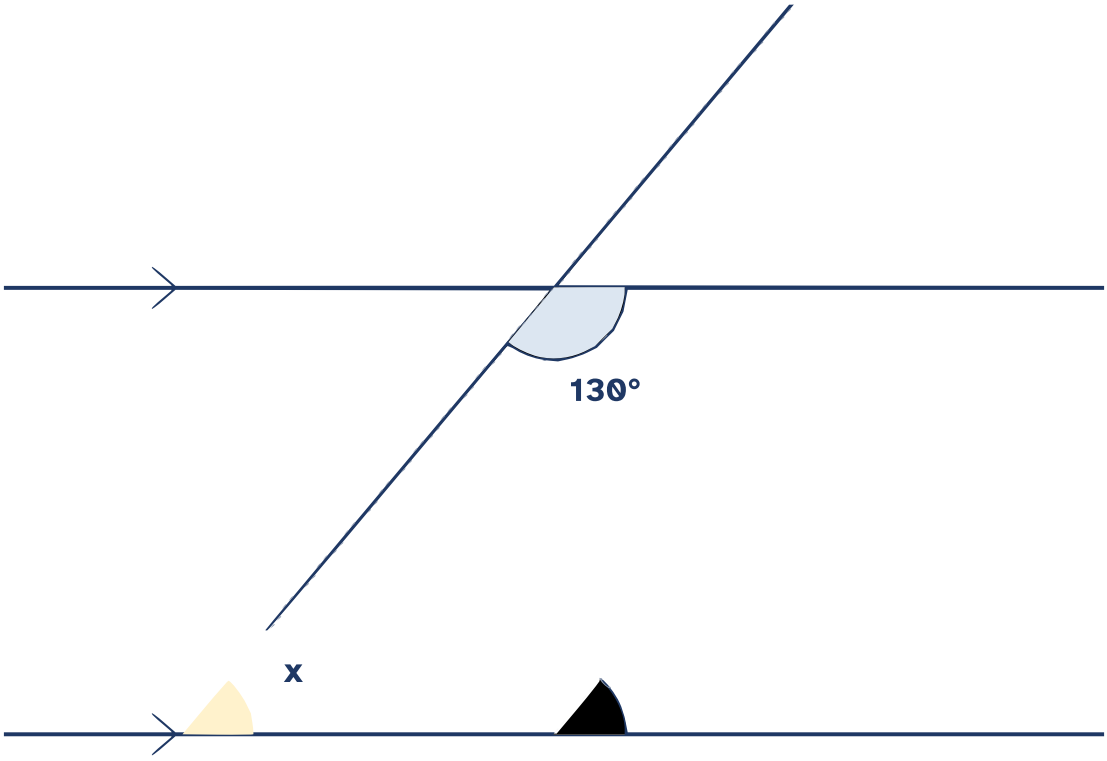
6 **Two parallel lines are cut by a transversal in the diagram. Find the angle marked x, which is on the opposite side of the transversal and between the lines.**



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7 Two parallel shelves are cut by a sloping support in the diagram. Find the angle marked x, which is between the shelves on the same side as the labelled angle.

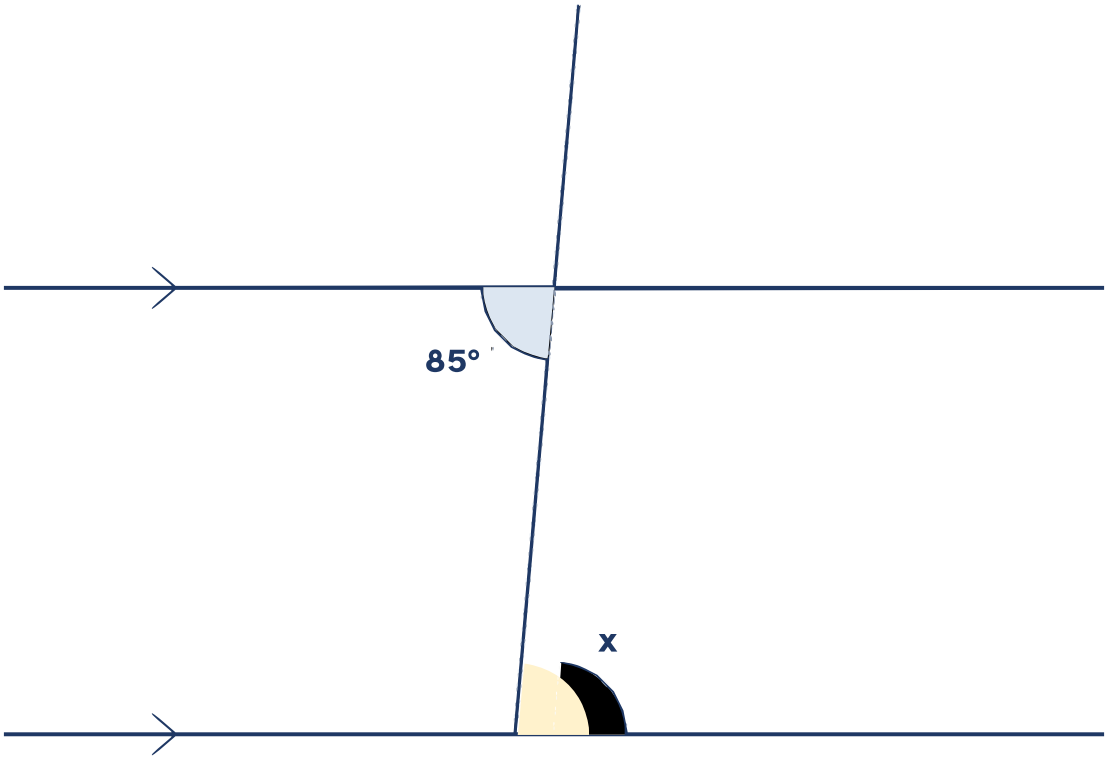


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8 **Two parallel lines are cut by a transversal in the diagram. The labelled angle is 85 degrees. Find the angle marked x, which is on the opposite side of the transversal and between the lines.**



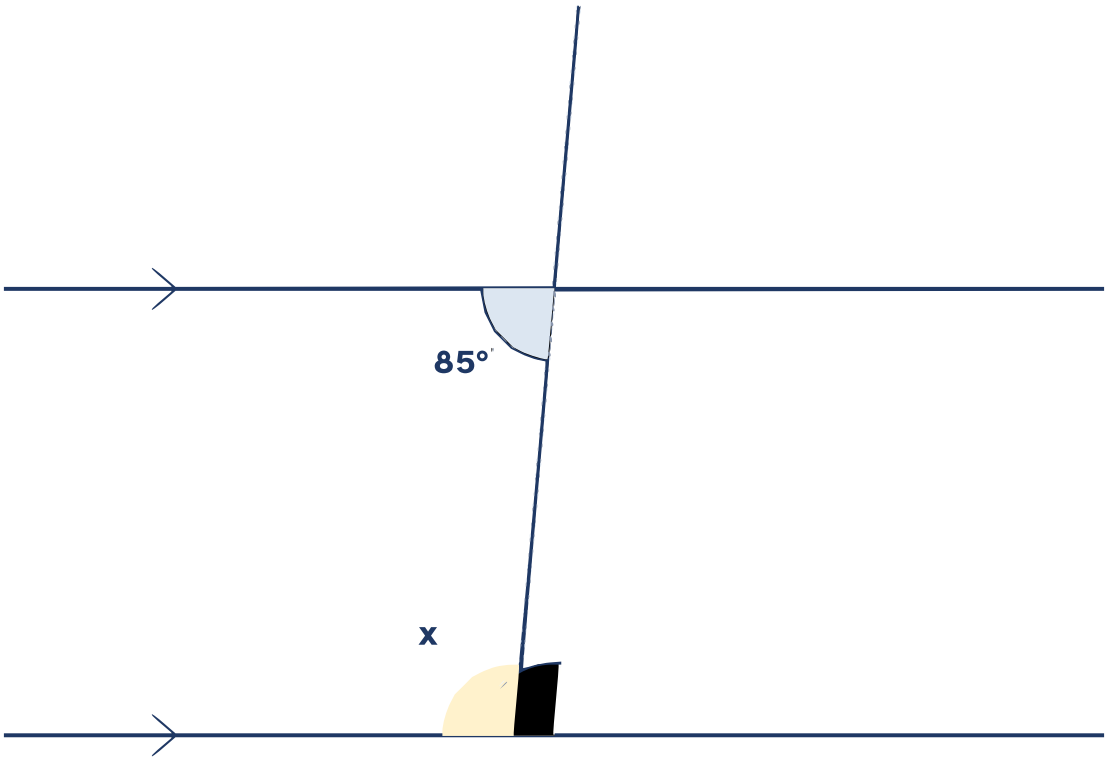
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9

Two parallel road lanes are crossed by a diagonal path in the diagram. The labelled angle is 85 degrees. Find the angle marked x, which is between the lines on the same side as the labelled angle.

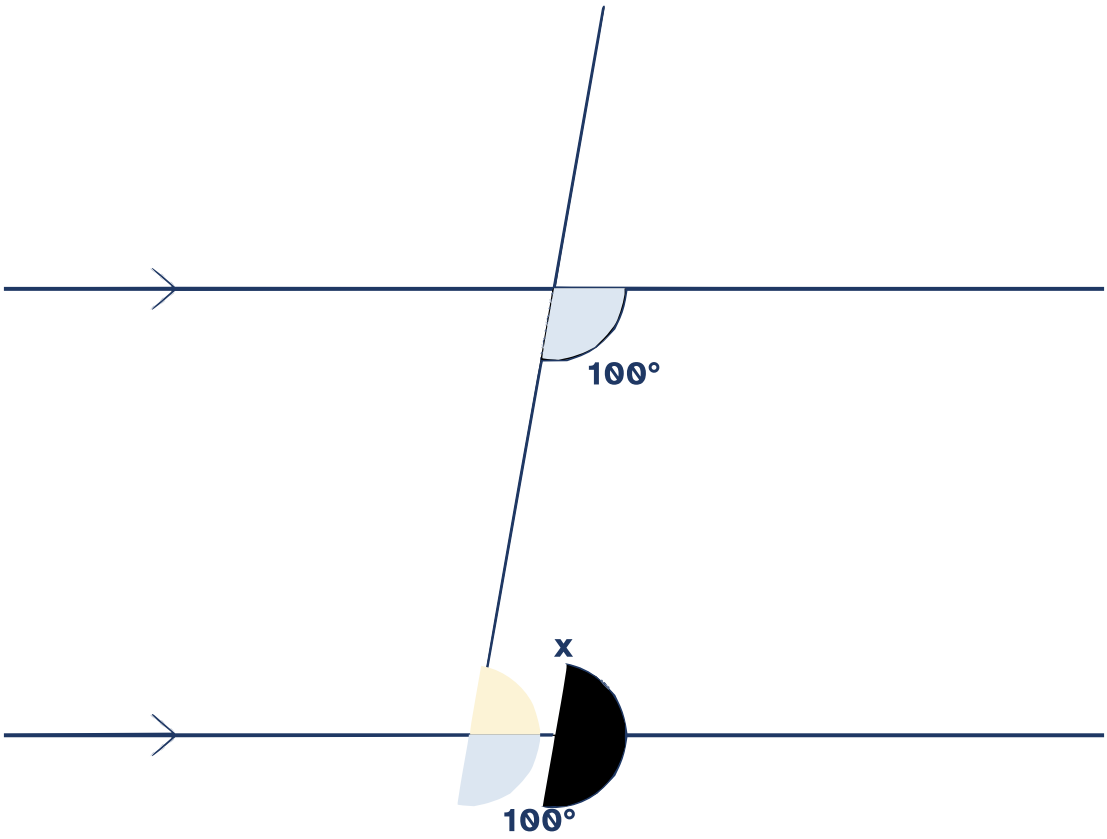


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10 **Two parallel lines are cut by a transversal in the diagram. The labelled angle and its corresponding angle are both marked in the diagram. Find the angle marked x, which is between the lines on the same side as the labelled angle.**



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ANSWER KEY

1. 60 degrees

2. 110 degrees

3. 120 degrees

4. 180 degrees

5. 135 degrees

6. 130 degrees

7. 50 degrees

8. 85 degrees

9. 95 degrees

10. 80 degrees

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