

Grade 8 - Angles in Triangles and Parallel Lines - Worksheet

Common Core 8.G.A.5 · maths-pdf.fr/en/

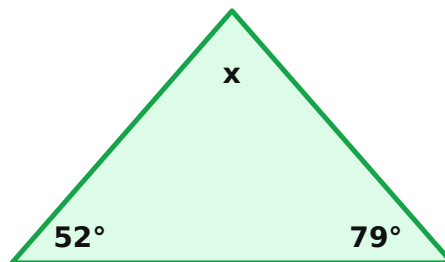
Name: _____ Class: _____ Date: ____/____/____

These 21 problems practice angle relationships in triangles and with parallel lines cut by a transversal (Common Core 8.G.A.5). Each problem has its own space for work, so print the page and write directly on it.

The problems start with direct skill checks and grow harder as you go. Later items use algebra to find angles and use angles to decide whether triangles are similar. Use the answer key afterwards to check every step.

Grade 8 · Common Core State Standards: **8.G.A.5**

Exercise 1 - Third angle



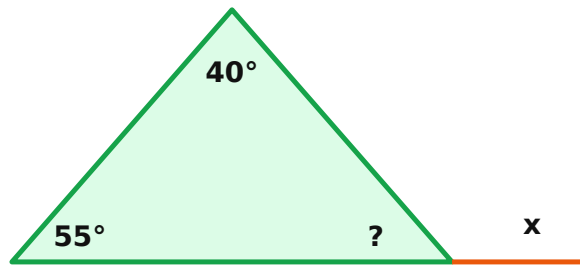
Find the third angle. Not drawn to scale.

A triangle has angles of 52° and 79° . Find the third angle.

Exercise 2 - Angle ratio

The angles of a triangle measure $2x$, $3x$ and $4x$ degrees. Find each angle.

Exercise 3 - Exterior angle



Exterior angle at B. Not drawn to scale.

A triangle has remote interior angles 55° and 40° . Find the exterior angle x .

Exercise 4 - Missing remote angle

An exterior angle of a triangle is 130° and one remote interior angle is 50° . Find the other remote interior angle.

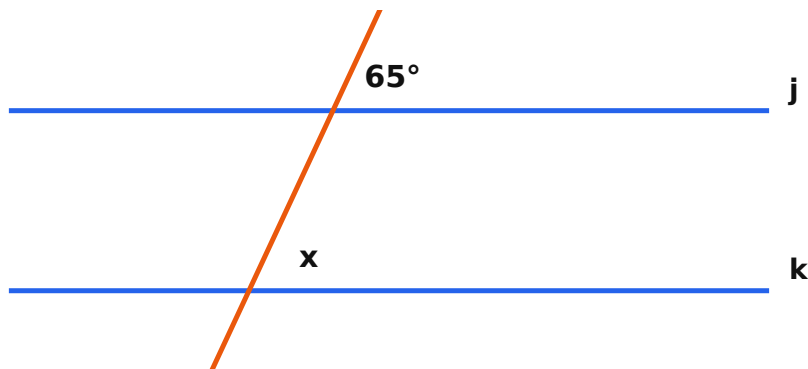
Exercise 5 - Vertical angles

Two lines cross. One angle is $(3x+10)^\circ$ and its vertical angle is $(5x-20)^\circ$. Find x and the angle.

Exercise 6 - Linear pair

Two angles form a linear pair. One measures 112° . Find the other.

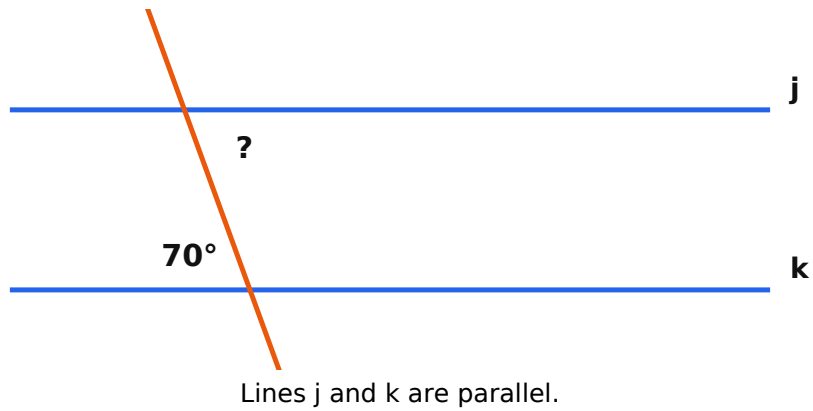
Exercise 7 - Corresponding angles



Lines j and k are parallel.

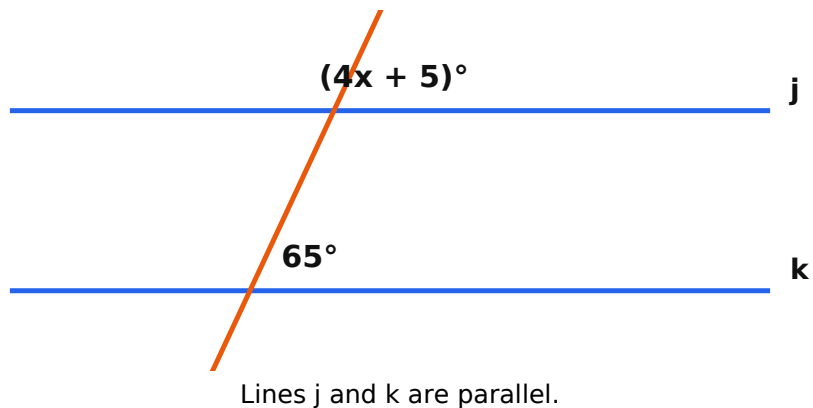
Lines j and k are parallel. Find x and name the angle pair.

Exercise 8 - Alternate interior



Lines j and k are parallel. Find the measure of the angle marked ?.

Exercise 9 - Solve with corresponding angles

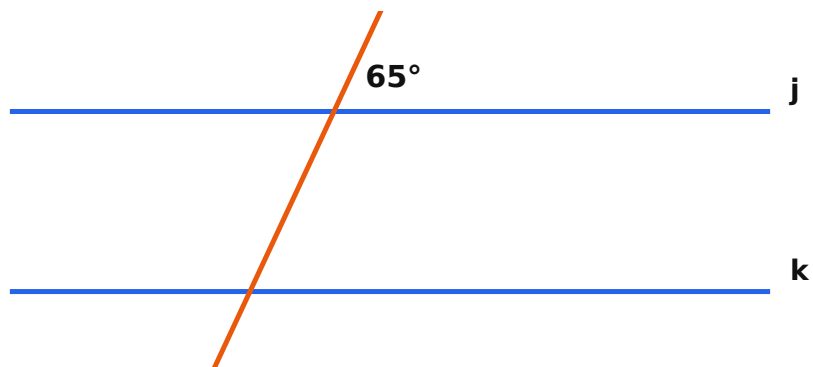


Lines j and k are parallel. Find x .

Exercise 10 - Co-interior angles

Two parallel lines are crossed by a transversal. Two same-side interior angles measure $(4x+10)^\circ$ and $(2x+20)^\circ$. Find x and each angle.

Exercise 11 - All eight angles



Lines j and k are parallel.

One angle formed by a transversal on parallel lines measures 65° . Find the measures of the other seven angles.

Exercise 12 - AA similarity

Triangle 1 has angles 40° and 70° . Triangle 2 has angles 70° and 70° . Are the triangles similar?

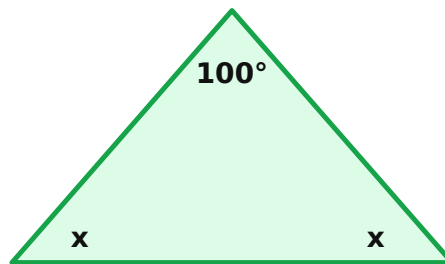
Exercise 13 - Another similarity check

Triangle P has angles 50° and 60° . Triangle Q has angles 60° and 80° . Are they similar?

Exercise 14 - Prove the exterior angle

Show that an exterior angle of a triangle equals the sum of the two remote interior angles. Use angles a , b and c .

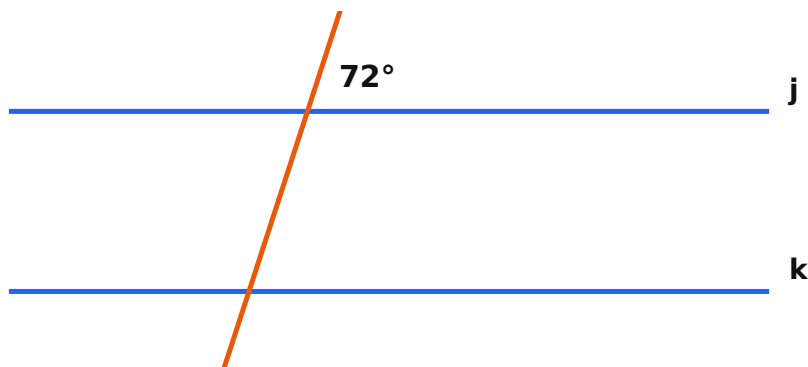
Exercise 15 - Roof truss



A roof truss with equal base angles. Not drawn to scale.

A roof truss is an isosceles triangle with apex angle 100° and two equal base angles x . Find x .

Exercise 16 - Street map



Main Street and Oak Street are parallel; Elm Avenue crosses both.

Main Street and Oak Street are parallel and Elm Avenue crosses both. At one crossing an angle measures 72° . Find the co-interior angle on the same side at the other crossing.

Exercise 17 - Sign angles

A triangular sign has angles x° , $(x+10)^\circ$ and $(x+20)^\circ$. Find the angles.

Exercise 18 - Garden exterior angle

A triangular garden has an exterior angle of 112° at one corner. One remote interior angle is 47° . Find the other remote interior angle and the interior angle at that corner.

Exercise 19 - Check the triangle

Can a triangle have angles 85° , 60° and 40° ? Explain.

Exercise 20 - Angle puzzle

In triangle ABC , angle B is twice angle A , and angle C is 30° more than angle A . Find all three angles.

Exercise 21 - Explain the angle sum

Explain, using a line parallel to the base, why the angles of a triangle add to 180° .