

Geometry - Parallel Lines and Transversals - Worksheet

Common Core G-CO.C.9 · maths-pdf.fr/en/

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

These 20 problems practice vertical angles, angle pairs with parallel lines and perpendicular bisectors (Common Core G-CO.C.9). The first problems are quick one-step checks of the definitions and formulas from the lesson. The middle problems ask for diagrams, equations and careful reasoning in the style of a high school Geometry class. The last six problems are applied problems with streets, railings, shelves and equations of bisectors.

Geometry · Common Core State Standards: **G-CO.C.9**

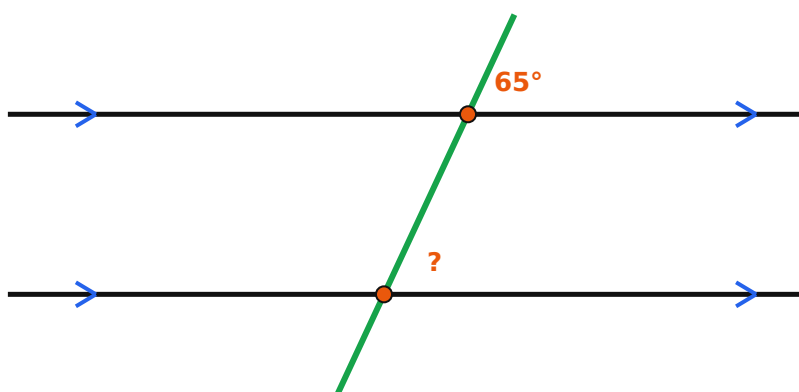
Exercise 1 - Vertical angles

Two lines intersect. One angle measures 68° . Find the measure of its vertical angle.

Exercise 2 - Linear pair

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

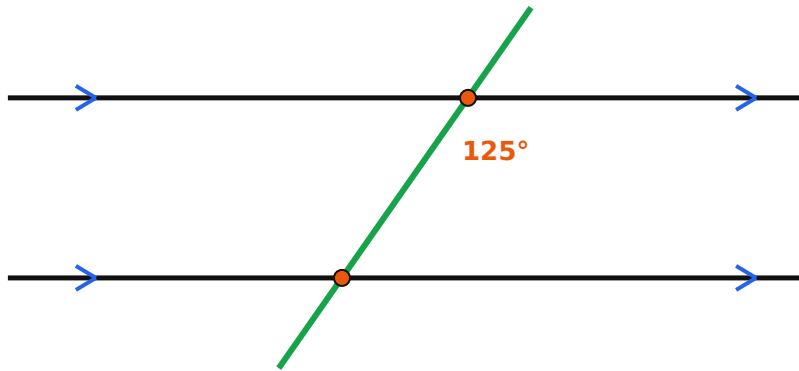
Exercise 3 - Corresponding angles



Parallel lines cut by a transversal.

The two horizontal lines are parallel. Angle 2 measures 65° . Find the measure of angle 6.

Exercise 4 - Alternate interior angles



Parallel lines cut by a transversal.

The horizontal lines are parallel and angle 4 measures 125° . Find the measure of angle 5.

Exercise 5 - Same-side interior angles

Parallel lines are cut by a transversal. Two same-side interior angles are angle 4, measuring 125° , and angle 6. Find the measure of angle 6.

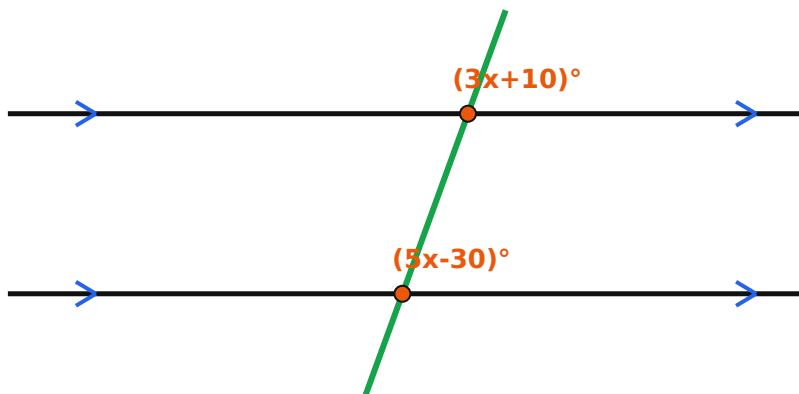
Exercise 6 - Name the pair

Name the angle-pair relationship for each pair in the figure: 3 and 6, 2 and 6, 4 and 6, 1 and 8.

Exercise 7 - Alternate exterior angles

Parallel lines are cut by a transversal. Angle 1 measures 118° . Find the measure of angle 8.

Exercise 8 - Corresponding angles with x



Parallel lines cut by a transversal.

Find x and the measure of each angle.

Exercise 9 - Alternate interior with x

Parallel lines are cut by a transversal. Alternate interior angles measure $(4x-7)^\circ$ and $(2x+25)^\circ$. Find x and the angle measure.

Exercise 10 - Same-side interior with x

Same-side interior angles of parallel lines measure $(6x+10)^\circ$ and $(4x+20)^\circ$. Find x and both angles.

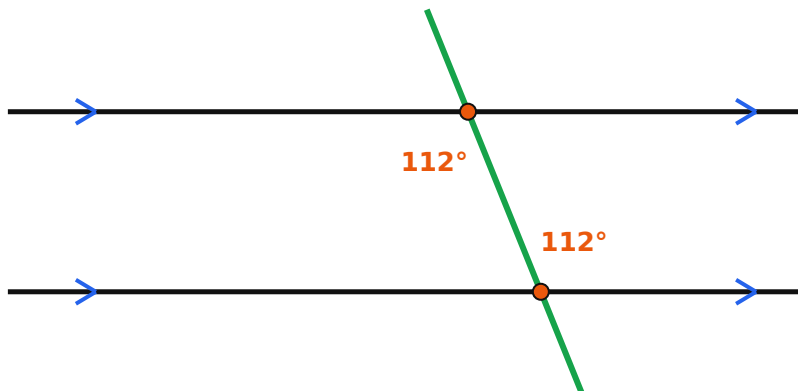
Exercise 11 - Vertical angles with x

Two vertical angles measure $(7x-12)^\circ$ and $(4x+21)^\circ$. Find x and the measure of each.

Exercise 12 - Are the lines parallel? (no)

A transversal crosses two lines. A pair of corresponding angles measures 74° and 76° . Are the lines parallel? Explain.

Exercise 13 - Are the lines parallel? (yes)



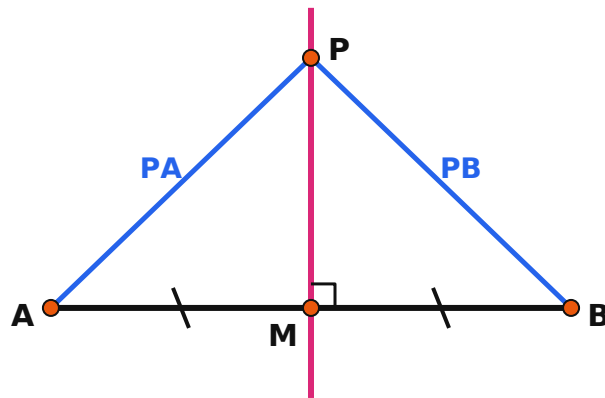
Alternate interior angles.

A transversal makes alternate interior angles of 112° and 112° . Are the lines parallel? Explain.

Exercise 14 - All eight angles

Parallel lines are cut by a transversal. One angle measures 57° . Find the measures of all eight angles.

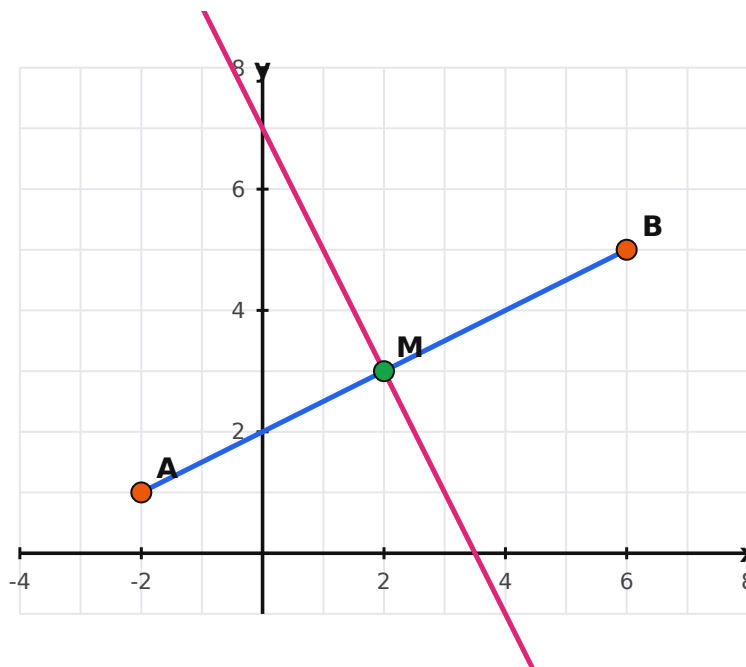
Exercise 15 - Perpendicular bisector



Every point on the perpendicular bisector of AB is equally far from A and from B .

Line PM is the perpendicular bisector of segment AB . $PA = 2x + 5$ and $PB = 4x - 11$. Find x and PA .

Exercise 16 - Perpendicular bisector equation



Segment AB and its perpendicular bisector.

Find an equation of the perpendicular bisector of the segment with endpoints $A(-2, 1)$ and $B(6, 5)$.

Exercise 17 - Crossing streets

Two parallel streets, Maple and Oak, are cut by a diagonal avenue. At Maple Street the acute angle on the north-east side is 52° . Find the angle on the same side at Oak Street if it is the corresponding angle, and find the obtuse angle next to it.

Exercise 18 - Railing

The two parallel rails of a staircase are crossed by a post. The post makes an angle of 64° with the upper rail. What angle does it make with the lower rail on the same side (same-side interior), if the 64° angle is also inside the rails?

Exercise 19 - Shelf bracket

A shelf is parallel to the floor. A bracket meets the shelf at $(3x+12)^\circ$ and meets a parallel rail at $(5x-8)^\circ$ as alternate interior angles. Find x and the angle.

Exercise 20 - Equal distance

Towns A and B are 10 miles apart. Priya's house P lies on the perpendicular bisector of the road between them and is 13 miles from A. How far is P from B, and how far is P from the midpoint M of AB?