

Grade 7 · Angle Relationships · Worksheet

Common Core 7.G.B.5 · mathovore.fr

Name: _____ Date: ____/____/____ Score: _____

This worksheet gives 20 problems on angle relationships, aligned with Common Core standard 7.G.B.5. The first problems ask for complements and supplements of given angles, and the middle problems use diagrams of crossing lines and angles on a line.

The last problems are word problems that need an equation with a variable, such as finding two supplementary angles when one is described in terms of the other. Work in order, and check each answer by adding the angles.

Grade 7 Common Core: 7.G.B.5

Problem 1: Complementary angles

Find the complement of each angle.

- a. 22°
- b. 65°
- c. 81°

Problem 2: Supplementary angles

Find the supplement of each angle.

- a. 130°
- b. 77°
- c. 164°

Problem 3: Find the missing angle

Solve each problem.

- a. Find the complement of 53° .
- b. Find the supplement of 146° .
- c. Find the measure of an angle that equals its own supplement.

Problem 4: Complementary or supplementary

Tell whether each pair of angles is complementary, supplementary, or neither.

- a. 40° and 50°
- b. 110° and 70°
- c. 120° and 50°
- d. 25° and 155°

Problem 5: Vertical angles

Two lines cross and one angle measures 72° . Find the measures of angles a , b , and c .

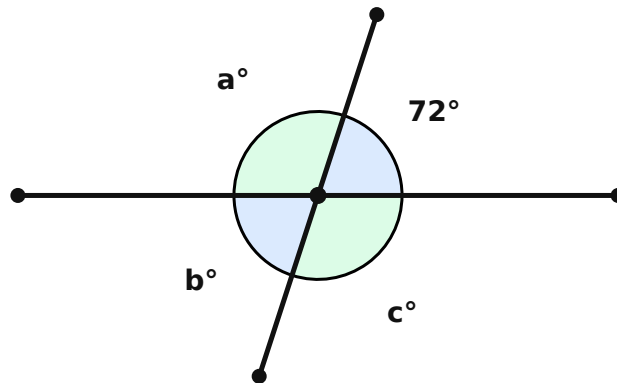
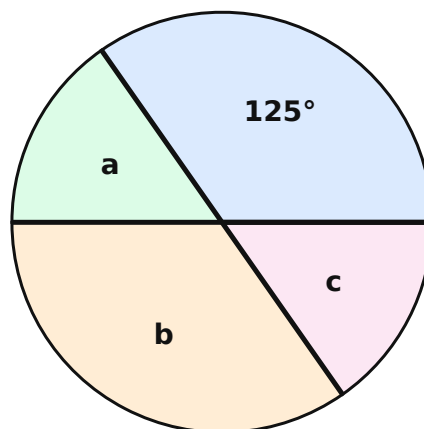


Figure for Problem 5.

Problem 6: Crossing lines

Two lines cross and one angle measures 125° . Find the measures of angles a , b , and c .



Two lines cross at a point.

Problem 7: Angles on a line

Find the value of x .

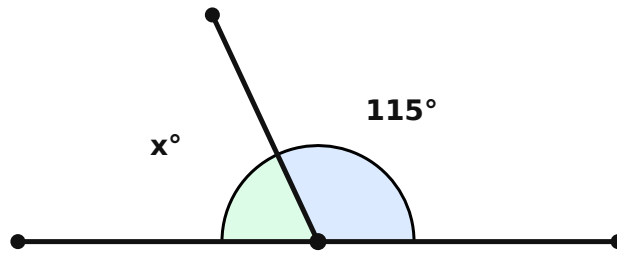
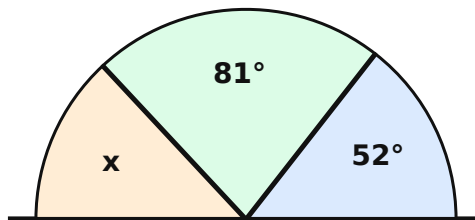


Figure for Problem 7.

Problem 8: Angles along a line

Three angles lie along a straight line. Find the value of x .



Three angles share a straight line.

Problem 9: Angles in a right angle

The corner of a square picture frame is split by a line. Find the value of x .

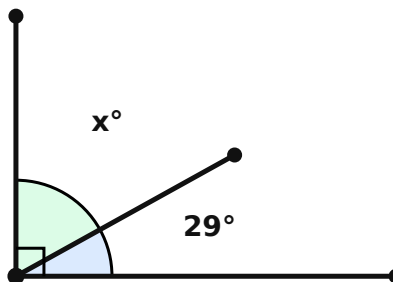
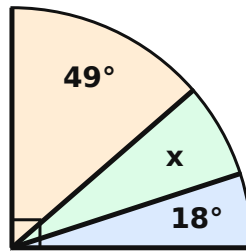


Figure for Problem 9.

Problem 10: Splitting a right angle

Two lines split the right angle of a drafting square into three angles. Find the value of x .



A corner of a drafting square.

Problem 11: Complementary equation

Two angles are complementary. One measures x° and the other measures $(2x+9)^\circ$. Write an equation, solve for x , and find both angle measures.

Problem 12: Supplementary equation

Two angles are supplementary. One measures x° and the other measures $(x+36)^\circ$. Write an equation, solve for x , and find both angle measures.

Problem 13: Vertical angles equation

Find x and y .

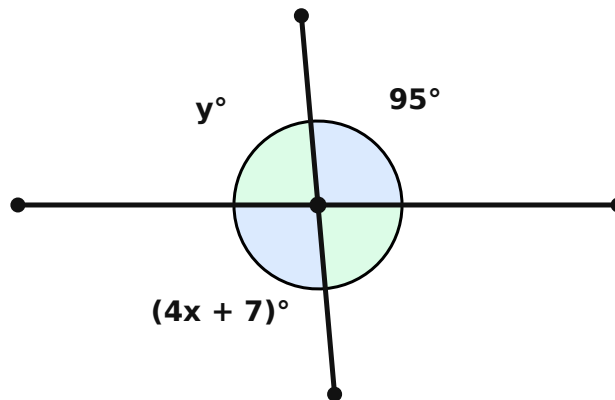
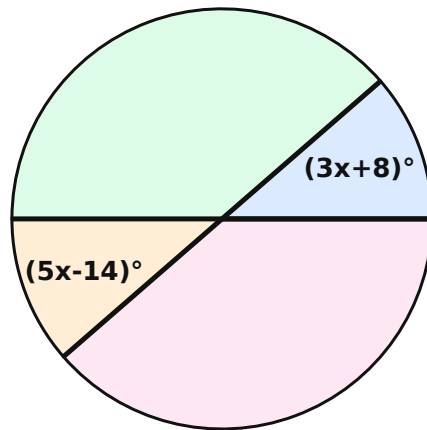


Figure for Problem 13.

Problem 14: Vertical angles with x

Two lines cross. The marked angles are vertical angles. (a) Find x . (b) Find the measure of each marked angle. (c) Find the measure of an angle next to a marked angle.



Two crossing lines. The marked angles are vertical.

Problem 15: Supplementary word problem

Two angles are supplementary. The larger angle is 20° more than 3 times the smaller angle. Write an equation and find both angles.

Problem 16: Complementary word problem

Two angles are complementary. One angle is 12° less than twice the other. Write an equation and find both angles.

Problem 17: Adjacent angles on a line

Two adjacent angles lie along a straight line. Find x and the measure of each angle.

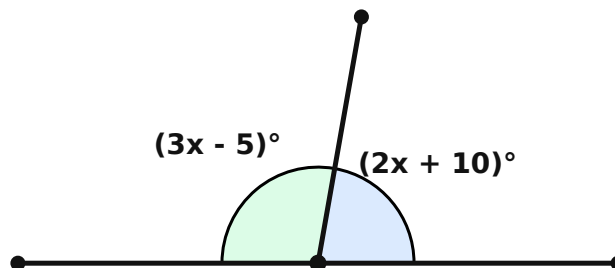
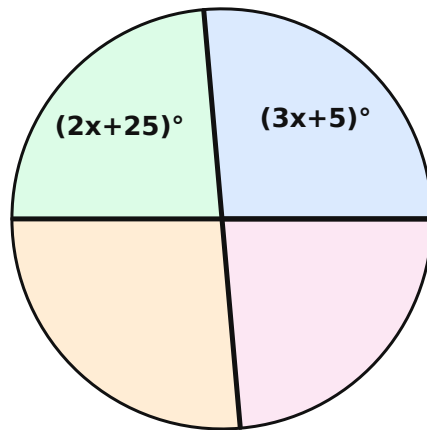


Figure for Problem 17.

Problem 18: Street corner

Oak Street and Pine Street cross. Two neighboring angles at the corner measure $(3x+5)^\circ$ and $(2x+25)^\circ$. Find x and the measures of all four angles at the corner.



Oak Street and Pine Street cross.

Problem 19: Three angles on a line

Ethan folds a straight strip of paper twice. The three angles along the strip measure x° , $(x+10)^\circ$, and $(2x+10)^\circ$. Write an equation, solve for x , and find all three angles.

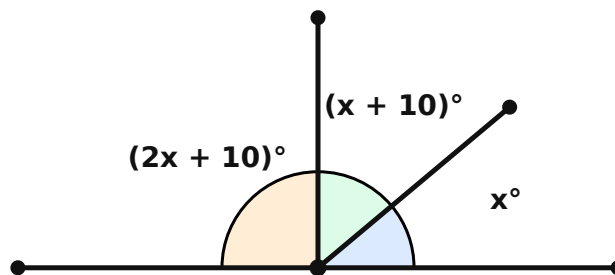
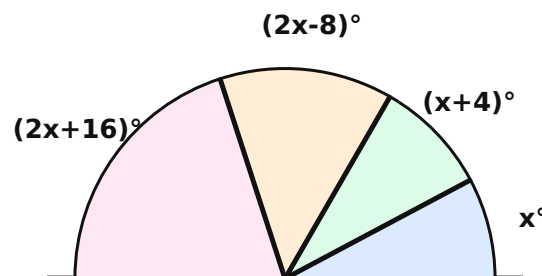


Figure for Problem 19.

Problem 20: Four angles on a line

Four angles lie along a straight line and measure x° , $(x+4)^\circ$, $(2x-8)^\circ$, and $(2x+16)^\circ$. Write an equation, solve for x , and find the measure of each angle.



Four angles share a straight line.