

Geometry - Parallelograms and Quadrilaterals - Worksheet

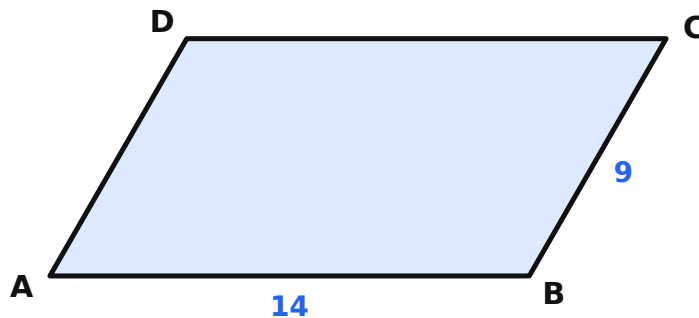
Common Core G-CO.C.11 · maths-pdf.fr/en/

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

These 20 problems practice parallelograms, rectangles, rhombuses, kites and trapezoids (Common Core G-CO.C.11). 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 applications with frames, stands, kites and coordinates.

Geometry · Common Core State Standards: **G-CO.C.11**

Exercise 1 - Opposite sides



Parallelogram ABCD.

In parallelogram ABCD, $AB = 14$ and $BC = 9$. Find CD and AD.

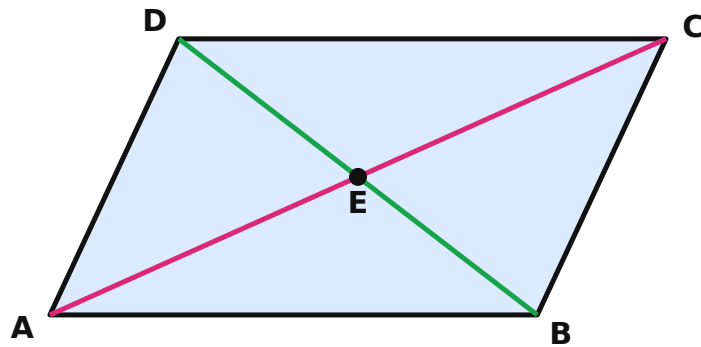
Exercise 2 - Opposite angles

In parallelogram WXYZ, $m\angle W = 123^\circ$. Find $m\angle Y$ and $m\angle X$.

Exercise 3 - Consecutive angles with x

In parallelogram ABCD, $m\angle A = (4x+10)^\circ$ and $m\angle B = (2x+20)^\circ$. Find x and both angles.

Exercise 4 - Diagonals bisect



Diagonals meet at E.

The diagonals of parallelogram ABCD meet at E. $AE = 7$ and $BE = 5.5$. Find AC and BD.

Exercise 5 - Diagonals with x

In parallelogram ABCD the diagonals meet at E. $AE = 3x + 1$ and $EC = 5x - 9$. Find x and AC.

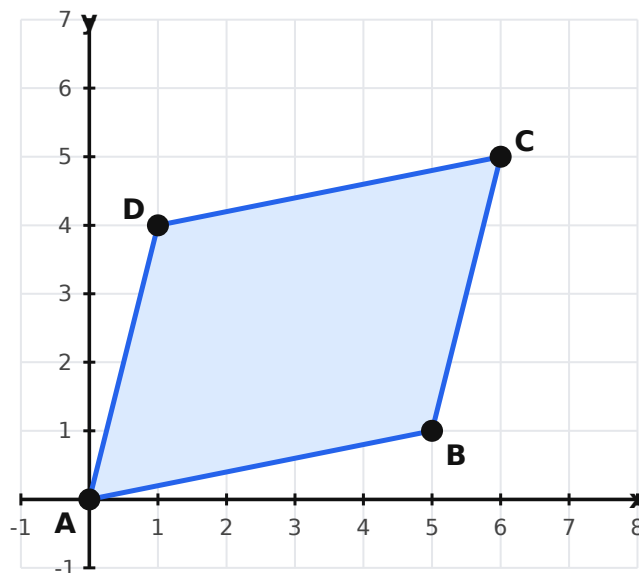
Exercise 6 - Sides with x

In parallelogram ABCD, $AB = 4x - 3$ and $CD = 2x + 9$. Find x and AB.

Exercise 7 - Perimeter

A parallelogram has sides of 8 inches and 13 inches. Find its perimeter.

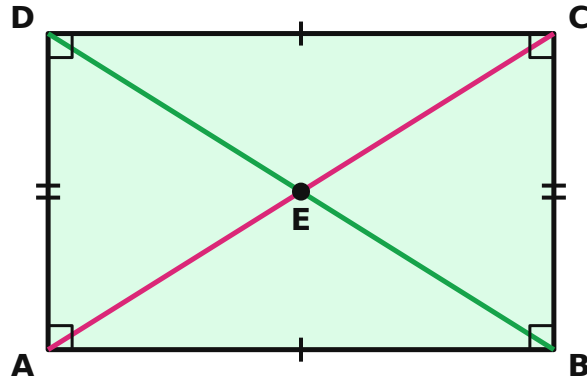
Exercise 8 - Fourth vertex



Parallelogram ABCD.

Three vertices of parallelogram ABCD are A(0, 0), B(5, 1) and D(1, 4). Find C.

Exercise 9 - Rectangle diagonals



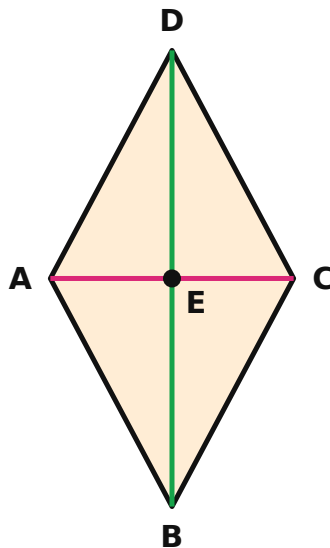
A rectangle has congruent diagonals.

In rectangle ABCD, $AC = 2x + 6$ and $BD = 4x - 10$. Find x and AC.

Exercise 10 - Rectangle diagonal

A rectangle is 9 units long and 12 units wide. Find the length of its diagonal.

Exercise 11 - Rhombus side



Rhombus with diagonals 16 and 30.

The diagonals of a rhombus are 16 and 30. Find the side length and the perimeter.

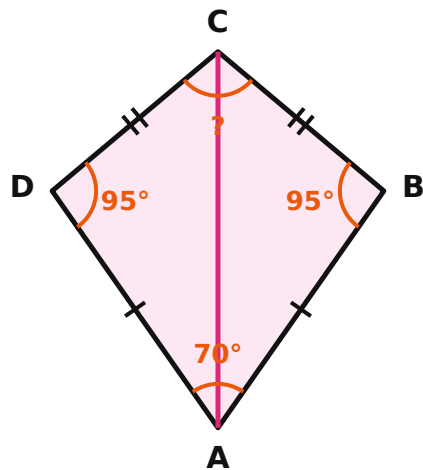
Exercise 12 - Rhombus angles

In rhombus ABCD, $m\angle A = 64^\circ$. Find $m\angle B$ and the angle that diagonal AC makes with side AB.

Exercise 13 - Square diagonal

A square has side length 10. Find its diagonal and the angle the diagonal makes with a side.

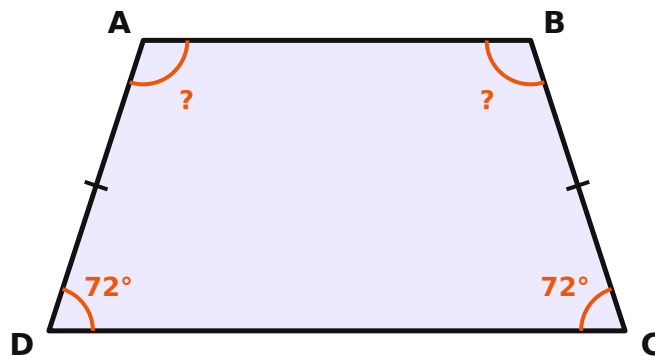
Exercise 14 - Kite angles



Kite ABCD.

In kite ABCD, $m\angle A = 70^\circ$ and $m\angle B = m\angle D = 95^\circ$. Find $m\angle C$.

Exercise 15 - Isosceles trapezoid



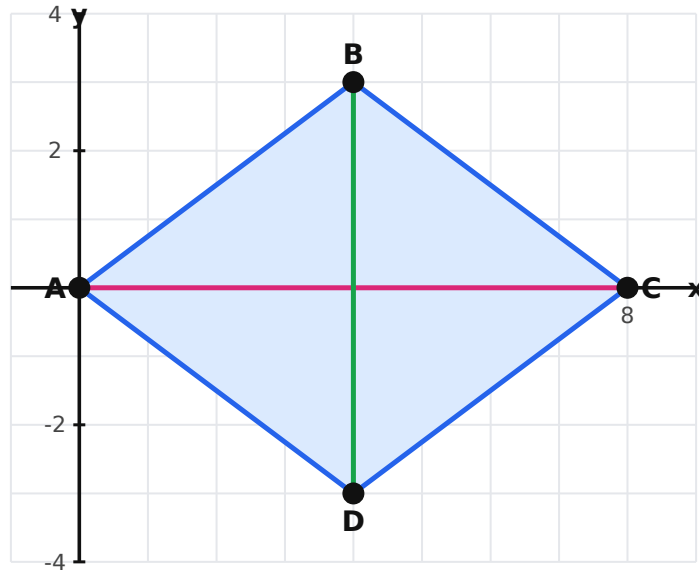
Isosceles trapezoid ABCD.

In isosceles trapezoid ABCD with bases AB and DC, $m\angle D = 72^\circ$. Find the other three angles.

Exercise 16 - Trapezoid midsegment

The bases of a trapezoid are 10 and 24. Find the length of the midsegment, which is the average of the bases.

Exercise 17 - Classify from coordinates



Quadrilateral ABCD.

The vertices of ABCD are A(0, 0), B(4, 3), C(8, 0) and D(4, -3). Show that ABCD is a rhombus but not a square.

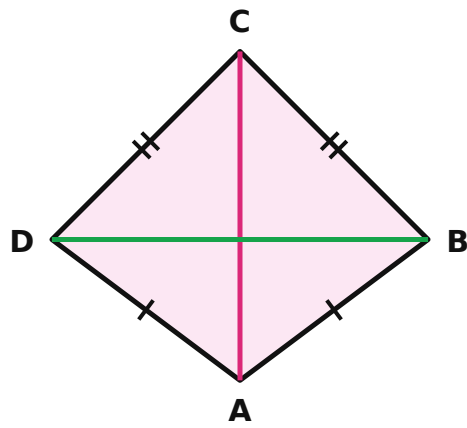
Exercise 18 - Laptop stand

A laptop stand has a parallelogram linkage with sides 14 inches and 9 inches. When the angle at A is 72° , find the other three angles and the perimeter.

Exercise 19 - Picture frame

A rectangular picture frame is 24 inches wide and 18 inches tall. A carpenter checks that the corners are square by measuring the diagonals. What should each diagonal measure?

Exercise 20 - Festival kite



Kite with perpendicular diagonals.

A kite has perpendicular diagonals of 60 cm and 40 cm. Find its area.