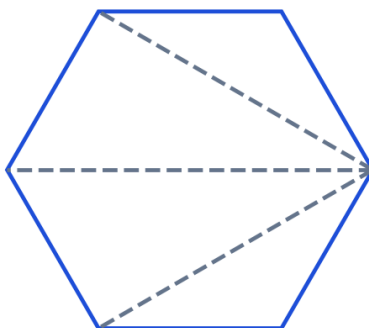


Problems | Name: _____

4.1 Polygon Angle Sums

4.1.1. A regular hexagon is divided from one vertex into triangles. How many triangles appear, and what is each interior angle?

A regular hexagon



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A diagonal fan uses n minus 2 triangles.

4.1.2. A regular polygon has exterior angle 24° . How many sides does it have?

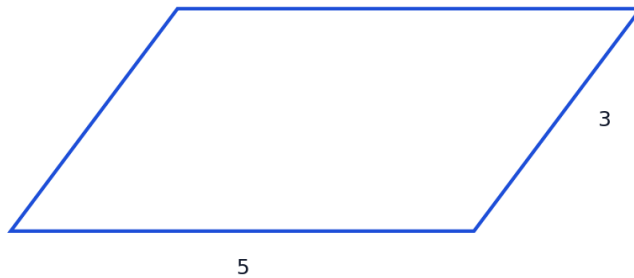
4.1.3. Five interior angles of a hexagon are 100° , 110° , 120° , 130° , 140° . Find the sixth.

Problems | Name: _____

4.2 The Quadrilateral Family

4.2.1. A parallelogram has adjacent side lengths 5 and 3. Find its perimeter.

A parallelogram



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Opposite sides are parallel and congruent.

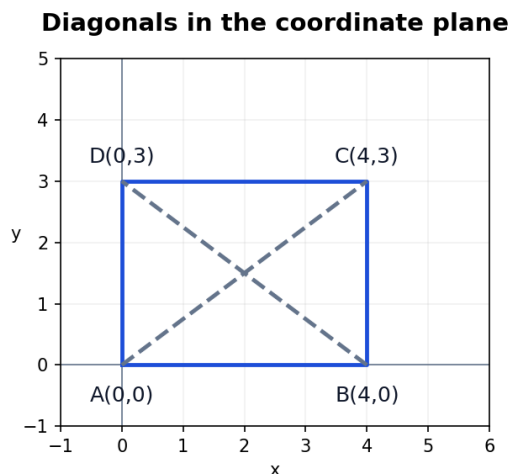
4.2.2. Does a quadrilateral with perpendicular diagonals have to be a square?

4.2.3. A rhombus has diagonals 6 and 8. Find its side length and area.

Problems | Name: _____

4.3 Coordinate Proofs

4.3.1. For $A = (0, 0)$, $B = (4, 0)$, $C = (4, 3)$, and $D = (0, 3)$, show the diagonals bisect each other.



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Find each diagonal midpoint using its endpoints.

4.3.2. Prove $(0, 0)$, $(2, 2)$, $(4, 0)$, $(2, -2)$ form a rhombus.

4.3.3. Why would placing a general triangle at $(0, 0)$, $(a, 0)$, $(0, b)$ invalidate a proof for all triangles?
