Lesson 7: Drawing Parallelograms

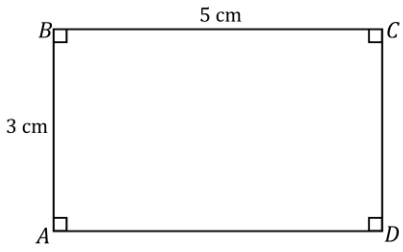
Classwork

Example 1

Use what you know about drawing parallel lines with a setsquare to draw rectangle $ABCD$ with dimensions of your choice. State the steps you used to draw your rectangle, and compare those steps to those of a partner.

Example 2

Use what you know about drawing parallel lines with a setsquare to draw rectangle $ABCD$ with $AB = 3$ cm and $BC = 5$ cm. Write a plan for the steps you will take to draw $ABCD$.



Example 3

Use a setsquare, ruler, and protractor to draw parallelogram $PQRS$ so that the measurement of $\angle P$ is $50°$, $PQ = 5$ cm, the measurement of $\angle Q$ is $130°$, and the length of the altitude to $\overline{PQ}$ is 4 cm.

Exercise 1

Use a setsquare, ruler, and protractor to draw parallelogram $DEFG$ so that the measurement of $\angle D$ is $40°$, $DE = 3$ cm, the measurement of $\angle E$ is $140°$, and the length of the altitude to $\overline{DE}$ is 5 cm.

Example 4

Use a setsquare, ruler, and protractor to draw rhombus $ABCD$ so that the measurement of $\angle A = 80°$, the measurement of $\angle B = 100°$, and each side of the rhombus measures 5 cm.

Lesson Summary

A protractor, ruler, and setsquare are necessary tools to construct a parallelogram. A setsquare is the tool that gives a means to draw parallel lines for the sides of a parallelogram.

Problem Set

1. Draw rectangle $ABCD$ with $AB = 5$ cm and $BC = 7$ cm.

2. Use a setsquare, ruler, and protractor to draw parallelogram $PQRS$ so that the measurement of $\angle P$ is $65°$, $PQ = 8$ cm, the measurement of $\angle Q$ is $115°$, and the length of the altitude to $\overline{PQ}$ is 3 cm.

3. Use a setsquare, ruler, and protractor to draw rhombus $ABCD$ so that the measurement of $\angle A$ is $60°$, and each side of the rhombus measures 5 cm.

The following table contains partial information for parallelogram $ABCD$. Using no tools, make a sketch of the parallelogram. Then, use a ruler, protractor, and setsquare to draw an accurate picture. Finally, complete the table with the unknown lengths.

	$\angle A$	AB	Altitude to $\overline{AB}$	BC	Altitude to $\overline{BC}$
4.	$45°$	5 cm		4 cm	
5.	$50°$	3 cm		3 cm	
6.	$60°$	4 cm	4 cm		

7. Use what you know about drawing parallel lines with a setsquare to draw trapezoid $ABCD$ with parallel sides $\overline{AB}$ and $\overline{CD}$. The length of $\overline{AB}$ is 3 cm, and the length of $\overline{CD}$ is 5 cm; the height between the parallel sides is 4 cm. Write a plan for the steps you will take to draw $ABCD$.

8. Use the appropriate tools to draw rectangle $FIND$ with $FI = 5$ cm and $IN = 10$ cm.

9. Challenge: Determine the area of the largest rectangle that will fit inside an equilateral triangle with side length 5 cm.