Name _____ Date _____

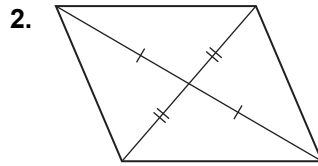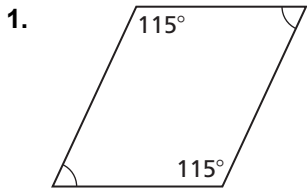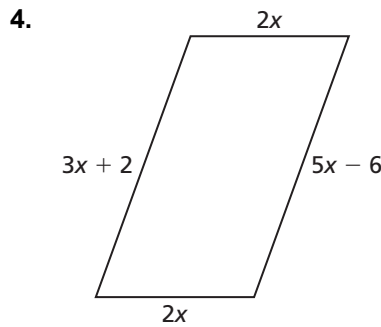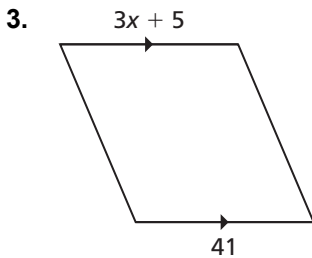## 7.3 Practice A

In Exercises 1 and 2, state which theorem you can use to show that the quadrilateral is a parallelogram.

1.

115°

115°

2.

In Exercises 3 and 4, find the value of *x* that makes the quadrilateral a parallelogram.

3.

3*x* + 5

41

4.

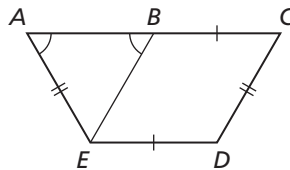2*x*

3*x* + 2

5*x* − 6

2*x*

In Exercises 5 and 6, graph the quadrilateral with the given vertices in a coordinate plane. Then show that the quadrilateral is a parallelogram.

5. $A(-4, -2)$, $B(-2, 1)$, $C(4, 1)$, $D(2, -2)$

6. $E(-4, 1)$, $F(-1, 5)$, $G(11, 0)$, $H(8, -4)$

7. Use the diagram to write a two-column proof.

Given $\angle A \cong \angle ABE$

$\overline{AE} \cong \overline{CD}$, $\overline{BC} \cong \overline{DE}$

Prove *BCDE* is a parallelogram.

8. In the diagram of the handrail for a staircase shown, $m\angle A = 145°$ and $\overline{AB} \cong \overline{CD}$.

a. Explain how to show that *ABDC* is a parallelogram.

b. Describe how to prove that *CDFE* is a parallelogram.

c. Can you prove that *EFHG* is a parallelogram? Explain.

d. Find $m\angle ACD$, $m\angle DCE$, $m\angle CEF$, and $m\angle EFD$.