

7.4**Properties of Special Parallelograms**

For use with Exploration 7.4

Essential Question What are the properties of the diagonals of rectangles, rhombuses, and squares?

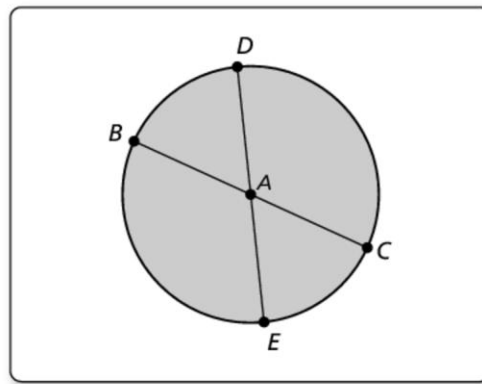
1 EXPLORATION: Identifying Special Quadrilaterals

Go to *BigIdeasMath.com* for an interactive tool to investigate this exploration.

Work with a partner. Use dynamic geometry software.

- Draw a circle with center A .
- Draw two diameters of the circle.
Label the endpoints B , C , D , and E .
- Draw quadrilateral $BDCE$.

Sample



- Is $BDCE$ a parallelogram?
rectangle? rhombus? square?
Explain your reasoning.
- Repeat parts (a) – (d) for several other circles. Write a conjecture based on your results.

7.4 Properties of Special Parallelograms (continued)

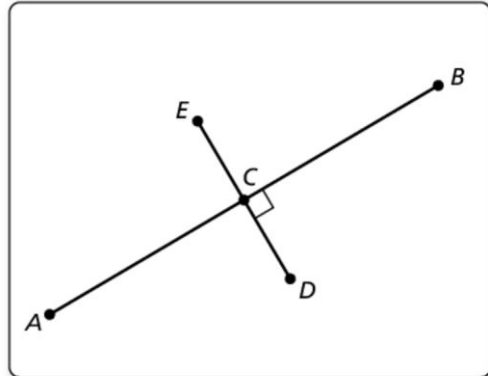
2 EXPLORATION: Identifying Special Quadrilaterals

Go to *BigIdeasMath.com* for an interactive tool to investigate this exploration.

Work with a partner. Use dynamic geometry software.

- a. Construct two segments that are perpendicular bisectors of each other. Label the endpoints $A, B, D,$ and E . Label the intersection C .
- b. Draw quadrilateral $AEBD$.
- c. Is $AEBD$ a parallelogram? rectangle? rhombus? square? Explain your reasoning.

Sample

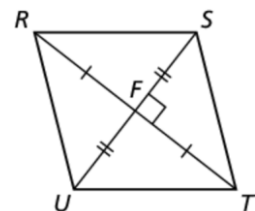


- d. Repeat parts (a) – (c) for several other segments. Write a conjecture based on your results.

Communicate Your Answer

- 3. What are the properties of the diagonals of rectangles, rhombuses, and squares?

- 4. Is $RSTU$ a parallelogram? rectangle? rhombus? square? Explain your reasoning.



- 5. What type of quadrilateral has congruent diagonals that bisect each other?