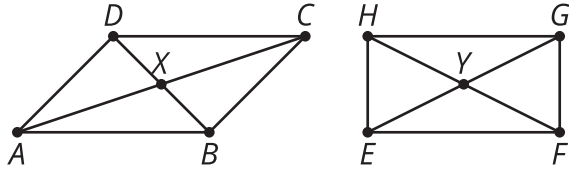


Unit 2 Lesson 13: Proofs about Parallelograms

1 Notice and Wonder: Diagonals (Warm up)

Student Task Statement

Here is parallelogram $ABCD$ and rectangle $EFGH$. What do you notice? What do you wonder?



2 The Diagonals of a Parallelogram

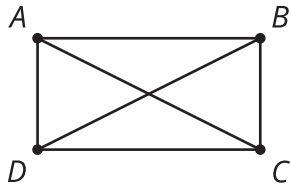
Student Task Statement

Conjecture: The diagonals of a parallelogram bisect each other.

1. Use the tools available to convince yourself the conjecture is true.
2. Convince your partner that the conjecture is true for any parallelogram. Can the 2 of you think of different ways to convince each other?
3. What information is needed to prove that the diagonals of a parallelogram bisect each other?
4. Prove that segment AC bisects segment BD , and that segment BD bisects segment AC .

3 Work Backwards to Prove

Student Task Statement



Given: $ABCD$ is a parallelogram with AB parallel to CD and AD parallel to BC . Diagonal AC is congruent to diagonal BD .

Prove: $ABCD$ is a rectangle (angles A , B , C , and D are right angles).

With your partner, you will work backwards from the statement to the proof until you feel confident that you can prove that $ABCD$ is a rectangle using only the given information.

Start with this sentence: I would know $ABCD$ is a rectangle if I knew _____.
Then take turns saying this sentence: I would know [what my partner just said] if I knew _____.

Write down what you each say. If you get to a statement and get stuck, go back to an earlier statement and try to take a different path.

Activity Synthesis

