GEOMETRY · CLASSWORK

Prove Theorem 6-20

SCORE / 25

01 Part A · Practice

Theorem 6-20: if a diagonal of a parallelogram bisects a pair of opposite angles, the parallelogram is a rhombus (ASA, then CPCTC).

EXAMPLE

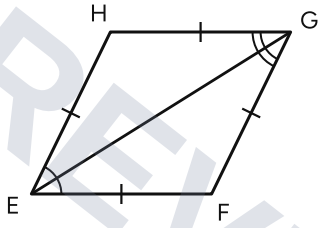
$\overline{AC}$ bisects $\angle A$ and $\angle C$ in $\square ABCD$. Why is $AB = AD$?

1. $\angle BAC \cong \angle DAC$, $\angle BCA \cong \angle DCA$, $AC = AC$.
2. $\triangle ABC \cong \triangle ADC$ (ASA).
3. $AB = AD$ (CPCTC), so all sides are equal.

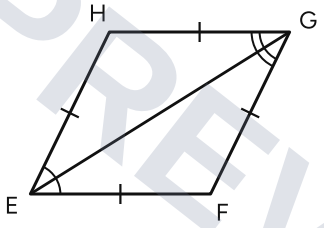
1 ●○○ In $\square KLMN$, diagonal $\overline{KM}$ bisects $\angle K$ and $m\angle LKM = 29°$. Find $m\angle LMK$.

2 ●○○ In $\square PQRS$, $m\angle QPR = (8x + 23)°$, $m\angle SPR = (4x + 35)°$, $PQ = 29$. If it is a rhombus, find x and the perimeter.

3 ●○○ Given $\square EFGH$ with $\overline{EG}$ bisecting $\angle E$ and $\angle G$. Prove it is a rhombus. Reason for: $\overline{EF} \cong \overline{GH}$, $\overline{EH} \cong \overline{FG}$?



4 ●○○ Given $\square EFGH$ with $\overline{EG}$ bisecting $\angle E$ and $\angle G$. Prove it is a rhombus. Reason for: $\triangle EFG \cong \triangle EHG$?



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Preview - the full worksheet and its answer key are at primeworksheet.com