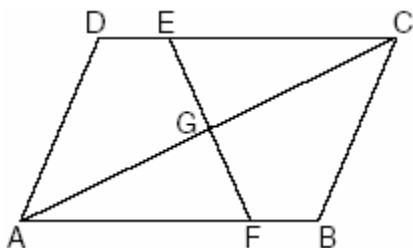


NAME: \_\_\_\_\_

1. 080310b, P.I. G.G.28

In the accompanying diagram of parallelogram  $ABCD$ ,  $\overline{DE} \cong \overline{BF}$ .

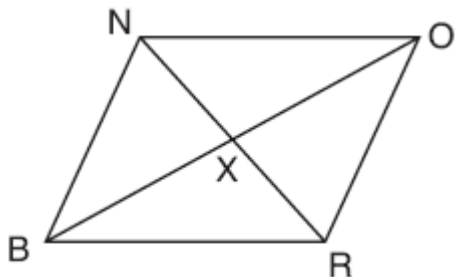


Triangle  $EGC$  can be proved congruent to triangle  $FGA$  by

- [A]  $AAS \cong AAS$       [B]  $HL \cong HL$   
[C]  $AAA \cong AAA$       [D]  $SSA \cong SSA$

2. 080731b, P.I. G.G.28

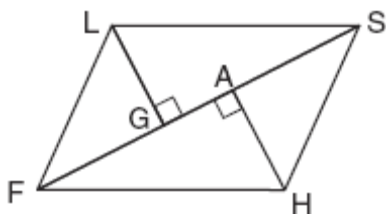
The accompanying diagram shows quadrilateral  $BRON$ , with diagonals  $\overline{NR}$  and  $\overline{BO}$ , which bisect each other at  $X$ .



Prove:  $\triangle BNX \cong \triangle ORX$

3. 010634b, P.I. G.G.28

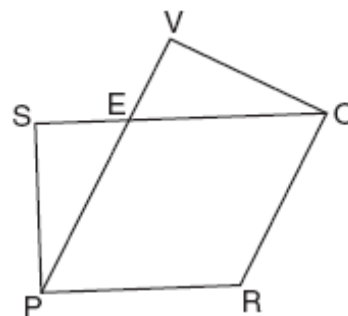
Given: parallelogram  $FLSH$ , diagonal  $\overline{FGAS}$ ,  $\overline{LG} \perp \overline{FS}$ ,  $\overline{HA} \perp \overline{FS}$



Prove:  $\triangle LGS \cong \triangle HAF$

4. 010934b, P.I. G.G.27

Given:  $PROE$  is a rhombus,  $\overline{SEO}$ ,  $\overline{PEV}$ ,  $\angle SPR \cong \angle VOR$



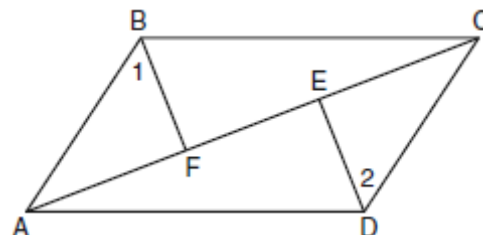
Prove:  $\overline{SE} \cong \overline{EV}$

5. 010233b, P.I. G.G.27

Prove that the diagonals of a parallelogram bisect each other.

6. 080938ge, P.I. G.G.27

Given: Quadrilateral  $ABCD$ , diagonal  $\overline{AFEC}$ ,  $\overline{AE} \cong \overline{FC}$ ,  $\overline{BF} \perp \overline{AC}$ ,  $\overline{DE} \perp \overline{AC}$ ,  $\angle 1 \cong \angle 2$   
Prove:  $ABCD$  is a parallelogram.



7. 080834b, P.I. G.G.27

A tricolored flag is made out of a rectangular piece of cloth whose corners are labeled  $A$ ,  $B$ ,  $C$ , and  $D$ . The colored regions are separated by two line segments,  $\overline{BM}$  and  $\overline{CM}$ , that meet at point  $M$ , the midpoint of side  $\overline{AD}$ . Prove that the two line segments that separate the regions will always be equal in length, regardless of the size of the flag.

[1] A \_\_\_\_\_

[4] A complete and correct proof that includes a concluding statement is written.

[3] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement or reason is missing or is incorrect or the concluding statement is missing.

[2] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.

[1] Some correct relevant statements about the proof are made, but two or three statements and/or reasons are missing or are incorrect.

[0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[2] obviously incorrect procedure.

[6] A complete and correct proof is written.

[5] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement or reason is missing or is incorrect, or the concluding statement is missing.

[4] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements or reasons are missing or are incorrect.

[3] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.

[2] Some correct relevant statements about the proof are made, but three or four statements or reasons are missing or are incorrect.

[1] Only one correct statement and reason are written.

[0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.

or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an

[3] obviously incorrect procedure.

- [6] A complete and correct proof that includes a conclusion is written.
- [5] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement and/or reason is missing or is incorrect.
- or [5]  $\triangle SEP \cong \triangle VEO$  is proven, but no further correct work is shown.
- [4] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements and/or reasons are missing or are incorrect.
- [3] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.
- [2] Some correct relevant statements about the proof are made, but three or four statements and/or reasons are missing or are incorrect.
- [1] Only one correct statement and reason are written.
- [0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.
- or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
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- [6] Either a correct Euclidean proof is written, with a concluding statement that the diagonals bisect each other, or a correct analytic proof using coordinate geometry is written, with a concluding statement that the diagonals bisect each other.
- [5] One reason is omitted or incorrect.
- or [5] Appropriate work is shown, but one computational error is made.
- [4] The appropriate triangles are proven to be congruent, but the corresponding parts and a final statement that indicates why the diagonals are bisected are omitted.
- or [4] Appropriate work is shown, but two computational errors are made.
- or [4] A correct analytic proof using coordinate geometry is written, but no concluding statement is made.
- [3] An appropriate conclusion is drawn, including a statement that indicates why the diagonals are bisected; but only a partial proof is written, with two steps missing, and errors in the statements or reasons are made.
- or [3] An analytic proof using coordinate geometry with more than two errors is written, but an appropriate concluding statement is made.
- or [3] The diagram in an analytic proof is labeled incorrectly or numerically, but the rest of the proof is correct.
- [2] Statements for the Euclidean proof are written, but no valid reasons are given.
- or [2] A congruence proof is written with some valid statements and reasons, but a concluding statement that the diagonals bisect each other is not made.
- [1] A correctly labeled diagram for a Euclidean proof is shown, but no proof is written.
- or [1] An analytic proof using coordinate geometry with more than two errors is written, but no concluding statement is made.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
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- [6] A complete and correct proof that includes a concluding statement is written.
- [5] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement or reason is missing or is incorrect.
- [4] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements or reasons are missing or are incorrect.
- [3] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.
- or [3]  $\triangle AFB \cong \triangle CED$  is proven, but no further correct work is shown.
- [2] A proof is written that demonstrates a method of proof, but one conceptual error is made, and one statement or reason is missing or is incorrect.
- or [2] Some correct relevant statements about the proof are made, but three or four statements or reasons are missing or are incorrect.
- [1] Only one correct relevant statement and reason are written.
- [0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.
- or [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
- 

- [6] A complete and correct proof is written.
- [5]  $\triangle BAM \cong \triangle CDM$  is proven, but no further correct work is shown.
- or [5] A proof is written that demonstrates a thorough understanding of the method of proof and contains no conceptual errors, but one statement and/or reason is missing or is incorrect.
- [4] A proof is written that demonstrates a good understanding of the method of proof and contains no conceptual errors, but two statements and/or reasons are missing or are incorrect.
- 3] A proof is written that demonstrates a good understanding of the method of proof, but one conceptual error is made.
- [2] Some correct relevant statements about the proof are made, but three or four statements and/or reasons are missing or are incorrect.
- [1] Only one correct statement and reason are written.
- [0] The "given" and/or the "prove" statements are rewritten in the style of a formal proof, but no further correct relevant statements are written.
- [0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously incorrect procedure.
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