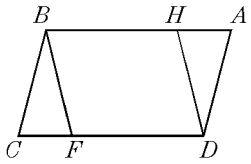
Honors Math 3

Quadrilateral Proofs

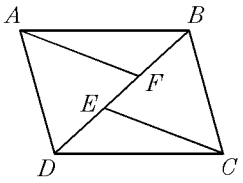
1. Given: $ABCD$ is a parallelogram, $\overline{BF}$ bisects $\angle ABC$, $\overline{DH}$ bisects $\angle ADC$

   Prove: $HBFD$ is a parallelogram



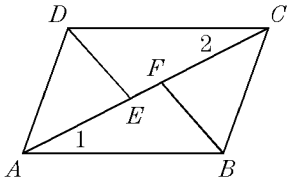
2. Given: $\angle CED \cong \angle AFB$, $\overline{DF} \cong \overline{EB}$ $\overline{AF} \cong \overline{EC}$

   Prove: $ABCD$ is a parallelogram



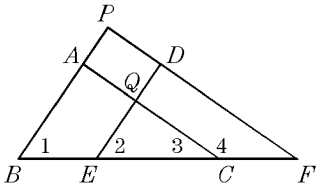
3. Given: $\angle 1 \cong \angle 2$, $\overline{AE} \cong \overline{CF}$, $\overline{DE} \parallel \overline{FB}$

   Prove: $ABCD$ is a parallelogram



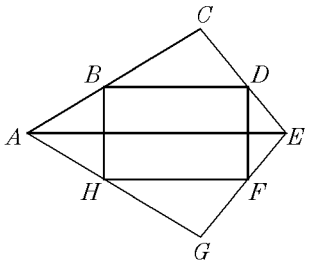
4. Given: $\overline{AB} \cong \overline{DE}$, $\overline{BE} \cong \overline{CF}$, $\angle 1 \cong \angle 2$

   Prove: $APDQ$ is a parallelogram



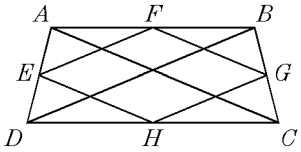
5. Given: B, D, F, and H are midpoints of $\overline{AC}$, $\overline{CE}$, $\overline{EG}$, and $\overline{GA}$ repectively

   Prove: $BDFH$ is a parallelogram



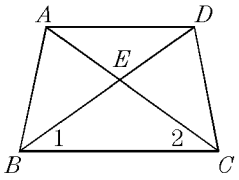
6. Given: $ABCD$ is an isosceles trapezoid, E, F, G, and H are midpoints of their respective sides

   Prove: $EFGH$ is a rhombus



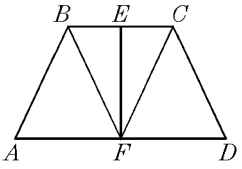
7. Given: $ABCD$ is an isosceles trapezoid with $\overline{AD} \parallel \overline{BC}$

   Prove: $\triangle EBC$ is isosceles



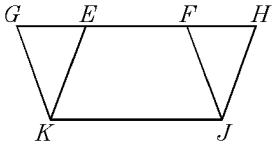
8. Given: $\overline{EF}$ is the perpendicular bisector of $\overline{BC}$ and $\overline{AD}$

   Prove: $ABCD$ is an isosceles trapezoid



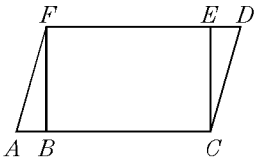
9. Given: $\triangle GEK \cong \triangle HFJ$, $\overline{GK} \cong \overline{EK}$

   Prove: $EFJK$ is an isosceles trapezoid



10. Given: $ACDF$ is a parallelogram, $\overline{FB} \perp \overline{AC}$, $\overline{CE} \perp \overline{FD}$

    Prove: $\overline{AB} \cong \overline{DE}$

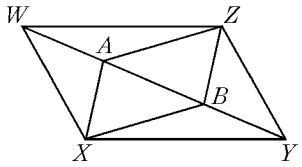


Honors Math 3

Quadrilateral Proofs

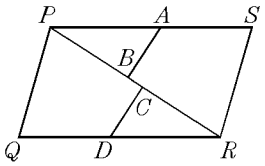
11. Given: $XYZW$ is a parallelogram, $\overline{XA} \perp \overline{WY}$, $\overline{ZB} \perp \overline{WY}$

Prove: $\overline{XB} \cong \overline{ZA}$



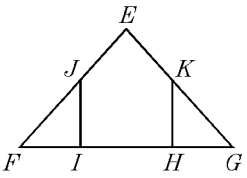
12. Given: $PQRS$ is a parallelogram, A is the midpoint of $\overline{PS}$, D is the midpoint of $\overline{QR}$, $\overline{PC} \cong \overline{BR}$

Prove: $\overline{AB} \cong \overline{CD}$



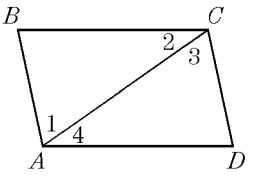
13. Given: isosceles $\triangle FEG$, $\overline{JI} \perp \overline{FG}$, $\overline{KH} \perp \overline{FG}$, J is the midpoint of $\overline{EF}$, K is the midpoint of $\overline{EG}$

Prove: $\overline{JI} \cong \overline{KH}$



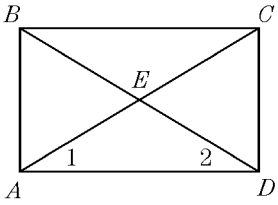
14. Given: $\overline{AB} \parallel \overline{DC}$, $\overline{BC} \parallel \overline{AD}$

Prove: $\angle B \cong \angle D$



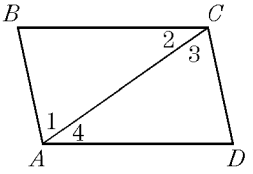
15. Given: $ABCD$ is a rectangle

Prove: $\angle 1 \cong \angle 2$



16. Given: $\overline{BC} \cong \overline{AD}$, $\angle 2 \cong \angle 4$

Prove: $\angle B \cong \angle D$



17. Prove the following theorem.

If a quadrilateral is a parallelogram, then a diagonal separates it into two congruent triangles.

18. Prove the following theorem.

If a quadrilateral is a parallelogram, then its diagonals bisect each other.

19. Prove the following theorem.

If a quadrilateral is a rhombus, then each diagonal bisects a pair of opposite angles.

20. Prove the following theorem.

If a quadrilateral is a rhombus, then its diagonals are perpendicular.

Honors Math 3 Quadrilateral Proofs 10/23/2014

1.
Answer: [proof]
CodePath: EAS.GEO.N.M.26

2.
Answer: [proof]
CodePath: EAS.GEO.N.M.27

3.
Answer: [proof]
CodePath: EAS.GEO.N.M.30

4.
Answer: [proof]
CodePath: EAS.GEO.N.M.33

5.
Answer: [proof]
CodePath: EAS.GEO.N.M.34

6.
Answer: [proof]
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7.
Answer: [proof]
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8.
Answer: [proof]
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9.
Answer: [proof]
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10.
Answer: [proof]
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11.
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12.
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13.
Answer: [proof]
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14.
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15.
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16.
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17.
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18.
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19.
Answer: [proof]
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20.
Answer: [proof]
CodePath: EAS.GEO.N.M.18