

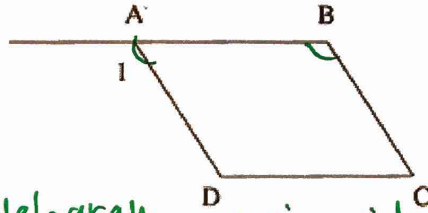
MATH 3 - 6A PROOFS HOMEWORK

NAME key 2017

Use a two column proof to prove the following statements.

1. Given: ABCD is a parallelogram

Prove: $m\angle 1 \cong m\angle B$



① ABCD is a parallelogram ① Given

② $\overline{AD} \parallel \overline{BC}$

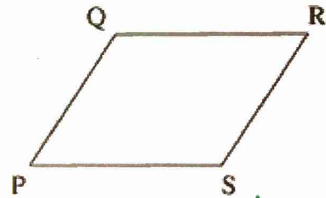
② In a parallelogram, opposite sides are parallel

③ $m\angle 1 \cong m\angle B$

③ If lines are parallel, corresponding angles are congruent

2. Given: PQRS is a parallelogram, , $m\angle P = 70^\circ$

Prove: , $m\angle R = 70^\circ$



① PQRS is a parallelogram ① Given

② $\angle P$ & $\angle R$ are congruent ② In a parallelogram, opposite angles are congruent

③ $m\angle P = m\angle R$

③ Definition of congruent angles

④ $m\angle P = 70^\circ$

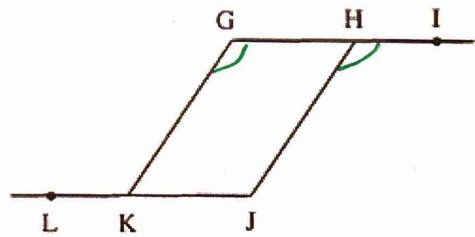
④ Given

⑤ $m\angle R = 70^\circ$

⑤ Substitution [steps 3 & 4]

3. Given: GHJK is a parallelogram

Prove: $m\angle G = m\angle JHI$



① GHJK is a parallelogram ① Given

② $\overline{GK} \parallel \overline{HI}$

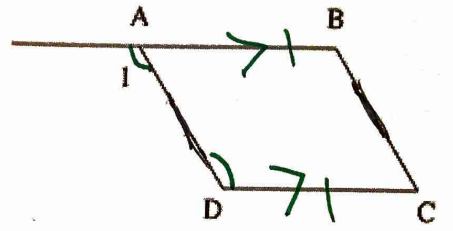
② In a parallelogram, opposite sides are parallel

③ $m\angle G = m\angle JHI$

③ If lines are parallel, corresponding angles are congruent

4. Given: $m\angle 1 \cong m\angle D$, $\overline{AB} \cong \overline{CD}$

Prove: ABCD is a parallelogram



① $m\angle 1 \cong m\angle D$ ① Given

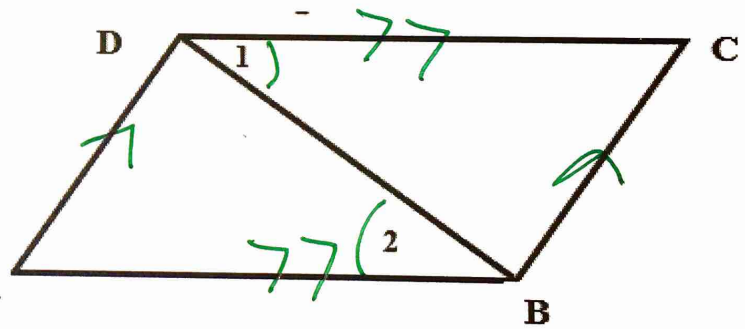
② $\overline{AB} \parallel \overline{CD}$ ② If alternate interior angles are congruent, lines are parallel

③ $\overline{AB} \cong \overline{CD}$ ③ Given

④ ABCD is a parallelogram ④ One set of opposite sides is both parallel & congruent

5. Given: $m\angle 1 \cong m\angle 2$, $AD \parallel BC$

Prove: ABCD is a parallelogram



① $m\angle 1 \cong m\angle 2$ ① Given

② $\overline{DC} \parallel \overline{AB}$ ② If alternate interior angles are congruent, the lines are parallel

③ $\overline{AD} \parallel \overline{BC}$ ③ Given

④ ABCD is a parallelogram ④ Both sets of opposite sides are parallel