

18. Copy the diagram, the "given" statement, and the "prove" statement. Artistic shading is optional. (Try to draw the diagram freehand; use tracing only as a desperate last resort.)

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

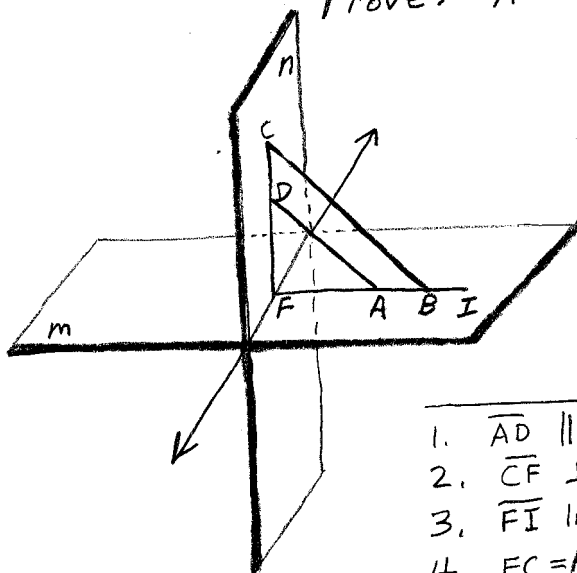
$\overline{CF} \perp m$

$\overline{FI}$ lies in m

$FC = FB$

$\triangle DAF$ is isosc.

Prove: $ABCD$ is an isosc. trapezoid



1. $\overline{AD} \parallel \overline{BC}$
2. $\overline{CF} \perp m$
3. $\overline{FI}$ lies in m
4. $FC = FB$
5. $\triangle DAF$ is isosc.
6. $\overline{CF} \perp \overline{FI}$
7. $\angle CFI$ is rt.
8. $\triangle DAF$ is rt. w/ hypotenuse $\overline{AD}$
9. $\angle CFI$ is not a base $\angle$ of $\triangle DAF$
10. $\angle ADF \cong \angle FAD$
11. $DF = AF$
12. $CD = AB$
13. $\overline{CD} \nparallel \overline{AB}$
14. $ABCD$ is an isosc. trap.

1. ϵ
2. G
3. G
4. G
5. G
6. Def. $\perp$ [lines and planes]
7. Def. $\perp$ [lines]
8. Def. rt. $\triangle$, def. hypot.
9. Hypot. is always opp. the largest angle (singular); base $\angle$ s would have to be $\cong$
10. ITT [base $\angle$ s are $\cong$]
11. ITT ($\triangle \Rightarrow \triangle$)
12. Subtr. (4, 11)
13. Lines are $\perp$ (6)
14. Def. isosc. trap. (1, 12, 13)

□