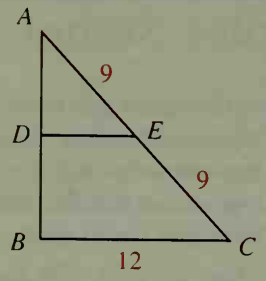
State the principal theorem that justifies the statement about the diagram.



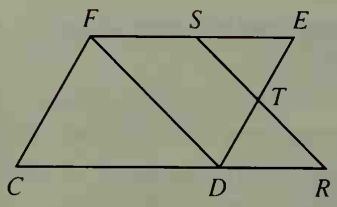
5–3

9. If $\overline{DE} \parallel \overline{BC}$, then D is the midpoint of $\overline{AB}$.

10. If D is the midpoint of $\overline{AB}$, then $\overline{DE} \parallel \overline{BC}$.

11. If D is the midpoint of $\overline{AB}$, then $DE = 6$.

12. Given: $\square CDEF$; S and T are the midpoints of $\overline{EF}$ and $\overline{ED}$.
Prove: $\overline{SR} \cong \overline{FD}$



Give the most descriptive name for quad. *MNOP*.

5–4

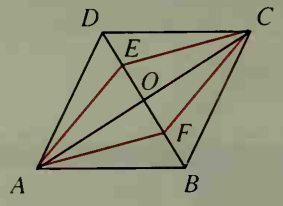
13. $\overline{MN} \cong \overline{PO}$; $\overline{MN} \parallel \overline{PO}$

14. $\overline{MN} \parallel \overline{PO}$; $\overline{NO} \parallel \overline{MP}$; $\overline{MO} \perp \overline{NP}$

15. $\angle M \cong \angle N \cong \angle O \cong \angle P$

16. $MNOP$ is a rectangle with $MN = NO$.

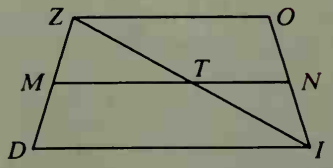
17. Given: $ABCD$ is a rhombus; $DE = BF$
Prove: $AECF$ is a rhombus.



Draw and label a diagram. List, in terms of the diagram, what is given and what is to be proved. Then write a proof.

18. $\overline{PX}$ and $\overline{QY}$ are altitudes of acute $\triangle PQR$, and Z is the midpoint of $\overline{PQ}$. Prove that $\triangle XYZ$ is isosceles.

$\overline{MN}$ is the median of trapezoid *ZOID*.



5–5

19. The bases of trap. $ZOID$ are ___?___ and ___?___.

20. If $ZO = 8$ and $MN = 11$, then $DI =$ ___?___.

21. If $ZO = 8$, then $TN =$ ___?___.

22. If trap. $ZOID$ is isosceles and $m\angle D = 80$, then $m\angle O =$ ___?___.