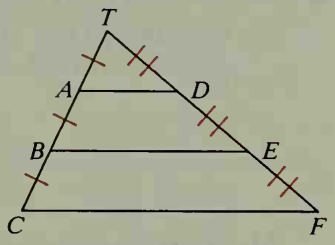
10. One angle of an isosceles trapezoid has measure 57. Find the measures of the other angles.

11. Two congruent angles of an isosceles trapezoid have measures $3x + 10$ and $5x - 10$. Find the value of x and then give the measures of all angles of the trapezoid.

In Exercises 12–20, $TA = AB = BC$ and $TD = DE = EF$.



Exs. 12–20

12. Write an equation that relates AD and BE. (*Hint:* Think of $\triangle TBE$.)

13. Write an equation that relates AD, BE, and CF. (*Hint:* Think of trapezoid $CFDA$.)

14. If $AD = 7$, then $BE =$ ___? and $CF =$ ___?.

15. If $BE = 26$, then $AD =$ ___? and $CF =$ ___?.

16. If $AD = x$ and $BE = x + 6$, then $x =$ ___? and $CF =$ ___? (numerical answers).

B

17. If $AD = x + 3$, $BE = x + y$, and $CF = 36$, then $x =$ ___? and $y =$ ___?.

18. If $AD = x + y$, $BE = 20$, and $CF = 4x - y$, then $CF =$ ___? (numerical answer).

19. Tony makes up a problem for the figure, setting $AD = 5$ and $CF = 17$. Katie says, "You can't do that." Explain.

20. Mike makes up a problem for the figure, setting $AD = 2x + 1$, $BE = 4x + 2$, and $CF = 6x + 3$ and asking for the value of x. Katie says, "Anybody can do that problem." Explain.

Draw a quadrilateral of the type named. Join, in order, the midpoints of the sides. What special kind of quadrilateral do you appear to get?

21. rhombus

22. rectangle

23. isosceles trapezoid

24. non-isosceles trapezoid

25. quadrilateral with no congruent sides

26. Carefully draw an isosceles trapezoid and measure its diagonals. What do you discover? Write a proof of your discovery.

27. Prove Theorem 5-18.

A *kite* is a quadrilateral that has two pairs of congruent sides, but opposite sides are not congruent.

28. Draw a convex kite. Discover, state, and prove whatever you can about the diagonals and angles of a kite.

29. **a.** Draw a convex kite. Join, in order, the midpoints of the sides. What special kind of quadrilateral do you appear to get?

b. Repeat part (a), but draw a nonconvex kite.