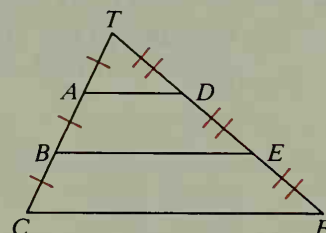


10. One angle of an isosceles trapezoid has measure 57. Find the measures of the other angles.
11. Two congruent angles of an isosceles trapezoid have measures  $3x + 10$  and  $5x - 10$ . Find the value of  $x$  and then give the measures of all angles of the trapezoid.

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

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  $BE = \underline{\quad? \quad}$  and  $CF = \underline{\quad? \quad}$ .
15. If  $BE = 26$ , then  $AD = \underline{\quad? \quad}$  and  $CF = \underline{\quad? \quad}$ .
16. If  $AD = x$  and  $BE = x + 6$ , then  $x = \underline{\quad? \quad}$   
and  $CF = \underline{\quad? \quad}$  (numerical answers).



Exs. 12–20

- B**
17. If  $AD = x + 3$ ,  $BE = x + y$ , and  $CF = 36$ , then  $x = \underline{\quad? \quad}$  and  $y = \underline{\quad? \quad}$ .
  18. If  $AD = x + y$ ,  $BE = 20$ , and  $CF = 4x - y$ , then  $CF = \underline{\quad? \quad}$  (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.