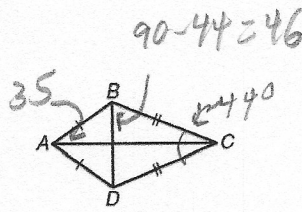


In kite  $ABCD$ ,  $m\angle BAC = 35^\circ$  and  $m\angle BCD = 44^\circ$ .  
For Problems 1–3, find each measure.



1.  $m\angle ABD$

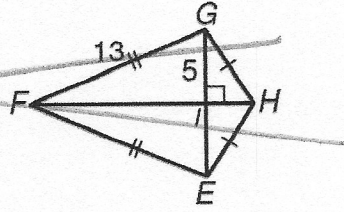
$90 - 35 = 55$

2.  $m\angle DCA$

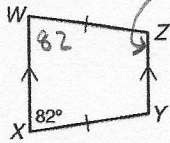
$\frac{44}{2} = 22^\circ$

3.  $m\angle ABC = 46 + 55 = 101$

4. Find the area of  $\triangle EFG$ .

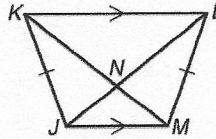


5. Find  $m\angle Z$ .



$180 - 82 = 98$

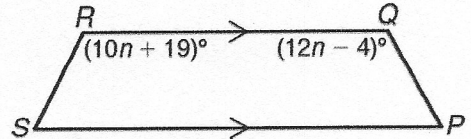
6.  $KM = 7.5$ , and  $NM = 2.6$ . Find  $LN$ .



$KN = 7.5 - 2.6 = 4.9$   
 $LN = 4.9$

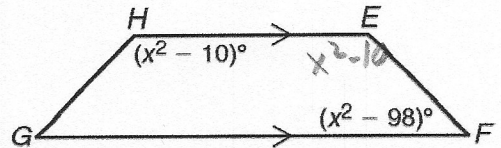
7. Find the value of  $n$  so that  $PQRS$  is isosceles.

$10n + 19 = 12n - 4$   
 $23 = 2n$   
 $n = 11.5$



8. Find the value of  $x$  so that  $EFGH$  is isosceles.

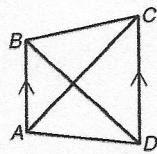
$x^2 - 10 + x^2 - 98 = 180$   
 $2x^2 - 108 = 180$   
 $2x^2 = 288$   
 $x^2 = 144$   
 $x = 12$



9.  $BD = 7a - 0.5$  and  $AC = 5a + 2.3$ . Find the

value of  $a$  so that  $ABCD$  is isosceles.

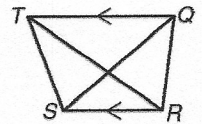
$7a - .5 = 5a + 2.3$   
 $2a = 2.8$   
 $a = 1.4$



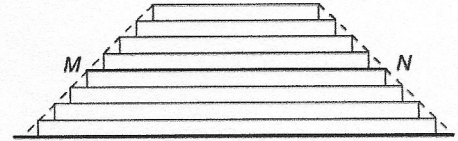
10.  $QS = 8z^2$ , and  $RT = 6z^2 + 50$ . Find the

value of  $z$  so that  $QRST$  is isosceles.

$8z^2 = 6z^2 + 50$   
 $2z^2 = 50$   
 $z^2 = 25$   
 $z = 5$



Use the figure for Problems 11 and 12. The figure shows a **ziggurat**. A ziggurat is a stepped, flat-topped pyramid that was used as a temple by ancient peoples of Mesopotamia. The dashed lines show that a ziggurat has sides roughly in the shape of a trapezoid.



11. Each "step" in the ziggurat has equal height. Give the vocabulary term for  $\overline{MN}$ .

midsegment

12. The bottom of the ziggurat is 27.3 meters long, and the top of the ziggurat is 11.6 meters long. Find  $MN$ .

$$MN = \frac{27.3 + 11.6}{2} = \frac{38.9}{2} = 19.45$$

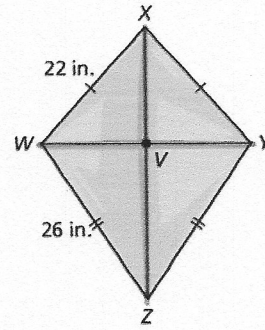
13. The figure shows a window in the shape of a kite.

a. Find  $m\angle XVW$ . = 90

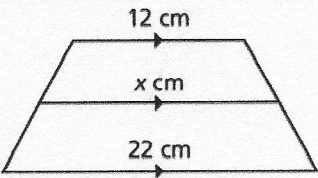
b. Find  $\overline{XY}$ . = 22

- c. Which angle is congruent to  $\angle XYZ$ ?

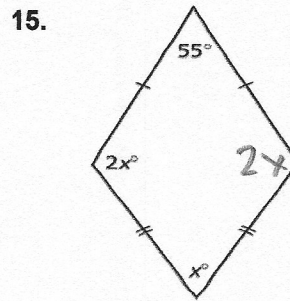
$\angle XWZ$



In Exercises 14 and 15, find the value of  $x$ .

14. 

$$x = \frac{12 + 22}{2} = \frac{34}{2} = 17$$

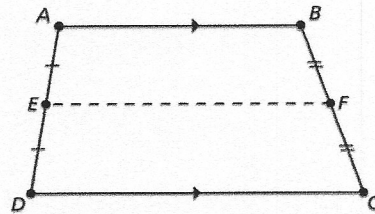


$$\begin{aligned} 55 + 2x + 2x + x &= 360 \\ 5x + 55 &= 360 \\ 5x &= 305 \\ x &= 61 \end{aligned}$$

Find the indicated measurement using quadrilateral  $ABCD$  as a reference.

16.  $\overline{AD} \cong \overline{BC}$ ,  $m\angle D = 75^\circ$ . Find  $m\angle A$ . =  $180 - 75 = 105$

17.  $AB = 17$ ,  $DC = 25$ . Find  $EF$ . =  $\frac{17 + 25}{2} = \frac{42}{2} = 21$



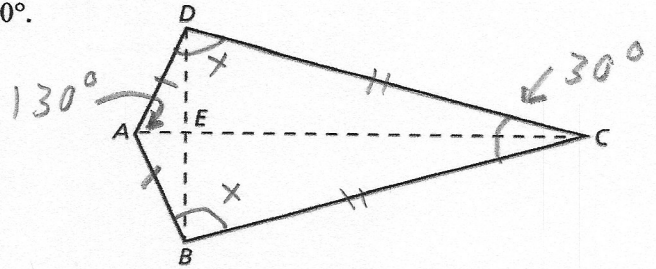


Find the indicated measurement using quadrilateral  $ABCD$  as a reference.

18.  $\overline{AD} \cong \overline{AB}$ ,  $\overline{DC} \cong \overline{BC}$ ,  $m\angle A = 130^\circ$ ,  $m\angle C = 30^\circ$ .

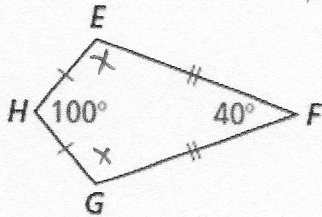
Find  $m\angle B$ .

$$\begin{aligned} x + x + 30 + 130 &= 360 \\ 2x + 160 &= 360 \\ 2x &= 200 \\ x &= 100 \end{aligned}$$



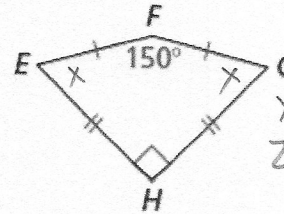
In 19 – 22, find  $m\angle G$ .

19.



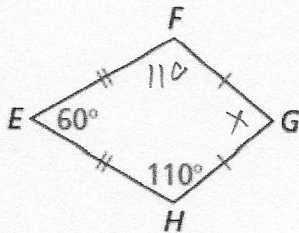
$$\begin{aligned} x + x + 40 + 100 &= 360 \\ 2x + 140 &= 360 \\ 2x &= 220 \\ x &= 110 \end{aligned}$$

20.



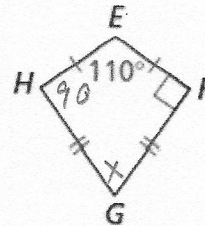
$$\begin{aligned} x + x + 150 + 90 &= 360 \\ 2x + 240 &= 360 \\ 2x &= 120 \\ x &= 60 \end{aligned}$$

21.



$$\begin{aligned} x + 110 + 110 + 60 &= 360 \\ x + 280 &= 360 \\ x &= 80 \end{aligned}$$

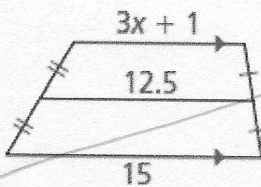
22.



$$\begin{aligned} x + 90 + 90 + 110 &= 360 \\ x + 290 &= 360 \\ x &= 70 \end{aligned}$$

Find the value of  $x$ .

23.



24.

