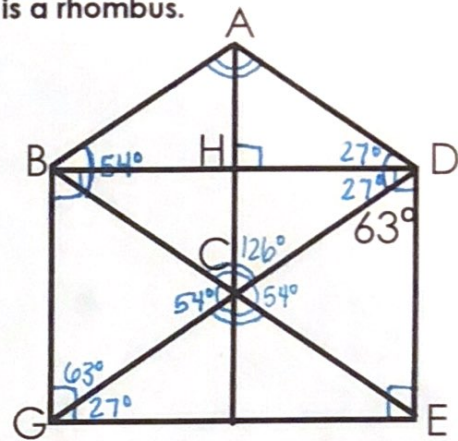


Name: _____ Date: _____

In the diagram shown, BDEG is a rectangle and ABCD is a rhombus.
Find the measure of the indicated angle.

1. $m\angle GDB = 27^\circ$
2. $m\angle ABC = 54^\circ$
3. $m\angle DAB = 126^\circ$
4. $m\angle BCG = 54^\circ$
5. $m\angle GCE = 126^\circ$
6. $m\angle DEG = 90^\circ$
7. $m\angle AHB = 90^\circ$
8. $m\angle DGB = 63^\circ$



Decide whether the statement is true or false.

9. If a quadrilateral is a rectangle, then it is a parallelogram.

true
(always)

10. If a quadrilateral is a parallelogram, then it is a rhombus.

false
(sometimes)

11. If a quadrilateral is a square, then it is a rhombus.

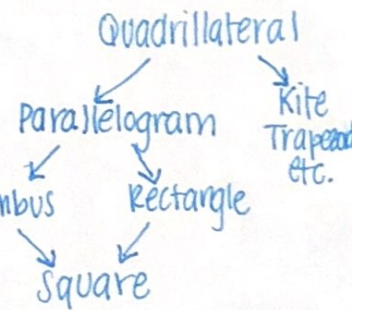
true
(always)

12. If a quadrilateral is a rectangle, then it is a rhombus.

false
(sometimes)

13. If a rhombus is a square, then it is a rectangle.

true
(always)



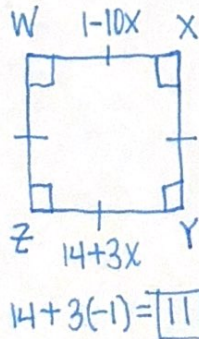
Find the length or angle measure.

14. WXYZ is a square.

$$WX = 1 - 10x$$

$$YZ = 14 + 3x$$

$$XY = 11$$



$$\begin{array}{r} 1-10x = 14+3x \\ -14 +10x \quad -14 +10x \\ \hline -13 = 13x \\ \frac{-13}{13} = \frac{13x}{13} \\ \boxed{x = -1} \end{array}$$

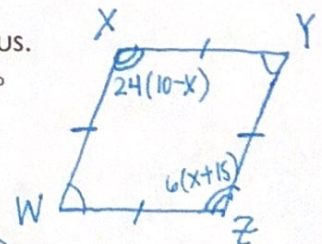
$$14 + 3(-1) = 11$$

15. WXYZ is a rhombus.

$$m\angle X = 24(10 - x)^\circ$$

$$m\angle Z = 6(x + 15)^\circ$$

$$m\angle Y = 60^\circ$$



$$\begin{array}{r} 24(10-x) = 6(x+15) \\ 240 - 24x = 6x + 90 \\ -90 + 24x \quad +24x -90 \\ \hline 150 = 30x \\ \frac{150}{30} = \frac{30x}{30} \\ \boxed{x = 5} \end{array}$$

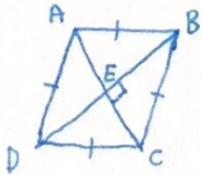
$$\begin{array}{r} m\angle Z = 6(5+15) \\ \quad \quad \quad 6(20) \\ \quad \quad \quad = 120 \end{array}$$

$$m\angle Y = 180 - 120 = 60$$

$$\frac{150}{30} = \frac{30x}{30}$$

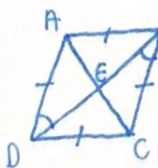
Quadrilateral ABCD is a rhombus.

If $m\angle BEC = (3x - 15)^\circ$,
16. then $x = \underline{35}$



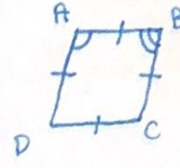
$$\begin{aligned} 3x - 15 &= 90 \\ +15 &+15 \\ \hline 3x &= 105 \\ \frac{3x}{3} &= \frac{105}{3} \\ \boxed{x} &= \boxed{35} \end{aligned}$$

If $m\angle ADE = (5x - 8)^\circ$,
17. & $m\angle CBE = (3x + 24)^\circ$,
then $x = \underline{16}$



$$\begin{aligned} 5x - 8 &= 3x + 24 \\ -3x &-3x + 8 \\ \hline 2x &= 32 \\ \frac{2x}{2} &= \frac{32}{2} \\ \boxed{x} &= \boxed{16} \end{aligned}$$

If $m\angle BAD = (4x + 14)^\circ$,
18. & $m\angle ABC = (2x + 10)^\circ$,
then $x = \underline{26}$



$$\begin{aligned} 4x + 14 + 2x + 10 &= 180 \\ 6x + 24 &= 180 \\ 6x &= 156 \\ \boxed{x} &= \boxed{26} \end{aligned}$$

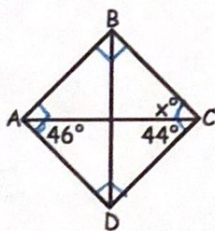
For each parallelogram (a) choose the best name and then (b) find the value of the variable(s).

19. $180 - 85 = 95$
 $2y + 95 = 180$
 $2y = 85$
 $y = 42.5$
rectangle $\boxed{x = 85}$
 $\boxed{y = 42.5}$

20. $y = 20^\circ$
 $x = 70^\circ$
Rhombus

21. $y + 110 = 180$
 $-110 \quad -110$
 $y = 70^\circ$
Rhombus $\boxed{x = 55^\circ}$
 $\boxed{y = 70^\circ}$

22. $m\angle ABC = y$

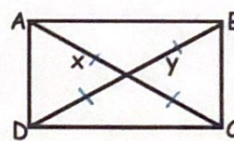


Rhombus

$$\boxed{x = 46^\circ}$$

$$\boxed{y = 90^\circ}$$

23. $AC = 16, BD = 16$



Rectangle

$$\boxed{x = 8}$$

$$\boxed{y = 8}$$

24. $180 - 44 = 136^\circ$
 $\boxed{x = 136^\circ}$

Rhombus

25. $(y - x)^\circ$
 $2x + 80 = 180$
 $2x = 100$
 $x = 50$
 $y = 90^\circ$
 $(y - x)^\circ = 40^\circ$

Rectangle