

= 360

A window is the shape of a quadrilateral. Find the indicated measure.

1) 1. $m\angle A$

$4n + 9n + 2 + 8n - 12 = 5n + 6 = 360$

2) 2. $m\angle B$

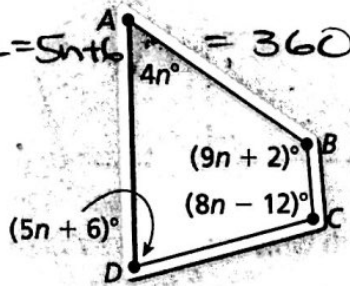
$26n - 4 = 360$

3) 3. $m\angle C$

$\frac{26n}{26} = \frac{360}{26}$

4) 4. $m\angle D$

$n = 14$



5. Find the measure of each interior angle of a regular dodecagon.

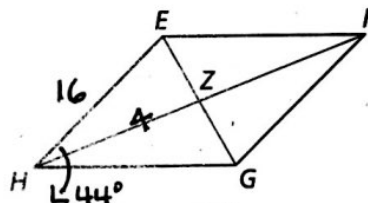
$\frac{(n-2)180}{n}$

6. Find the measure of each exterior angle of a regular 16-gon.

$\frac{360}{16}$

In parallelogram EFGH, $EH = 16$, $HZ = 4$, and $m\angle EHG = 44^\circ$. Find the indicated measure.

7. FH $FZ \cong HZ$ $4 + 4 = 8$



8. $m\angle FEH$

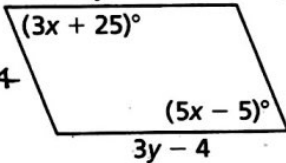
$\frac{180 - 44}{2} = 68$

$92 \div 2 = 46$

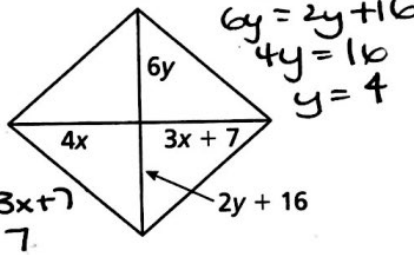
Find the values of x and y that make the quadrilateral a parallelogram.

9. $2y + 8$

$3x + 25 = 5x - 5$



$30 = 2x$
 $15 = x$



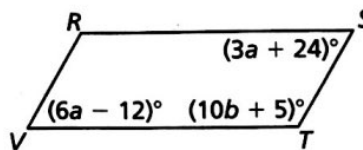
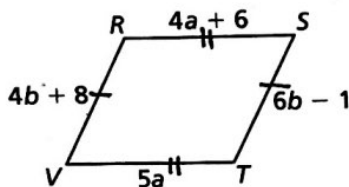
$6y = 2y + 16$
 $4y = 16$
 $y = 4$

$4x = 3x + 7$
 $x = 7$

State which theorem you can use to show that the quadrilateral is a parallelogram. Explain your reasoning.

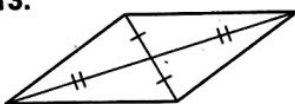
11. $a = 6$ and $b = 4.5$

12. $a = 12$ and $b = 11.5$



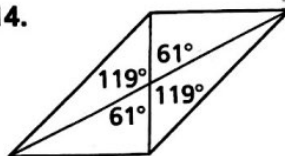
From the information given, can you determine whether the quadrilateral is a parallelogram? Explain your reasoning.

13.

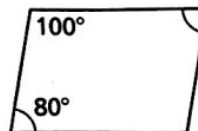


YES!

14.



15.



YES

Answers

1. 56

2. 128

3. 100

4. 76

5. 150

6. 22.5

7. 8

8. 46

9. $x = 15, y = 12$

10. $x = 7, y = 4$

11. PARALLELOGRAM

OPP SIDES CONV THEOREM (P. 368)

12. PARALLELOGRAM

OPP ANGLES CONV THEOREM (P. 368)

13. PARALLELOGRAM

DIAGONALS THEOREM (P. 369)

14. NO. NO

CONDITIONS FOR PARALLELOGRAM MET

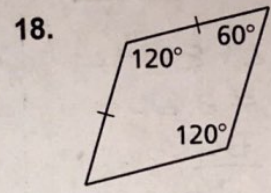
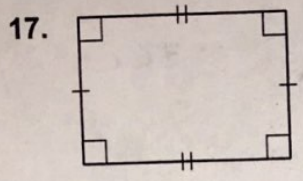
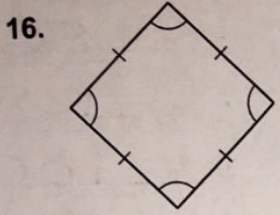
15. PARALLELOGRAM

OPP ANGLES & PARALLELOGRAM CONSECUTIVE ANGLES THEOREM

Chapter 7

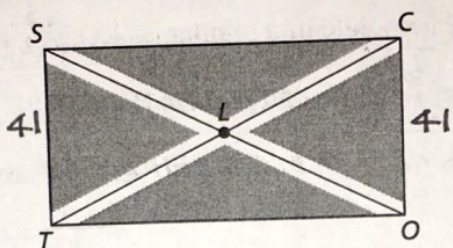
Test B (continued)

Given the most specific name for the quadrilateral. Explain your reasoning.



The flag of Scotland is a rectangle with white stripes as the diagonals. In rectangle SCOT, $SO = 92.4$, and $CO = 41$. Find the indicated measure.

19. OL 20. ST
21. CT 22. LT



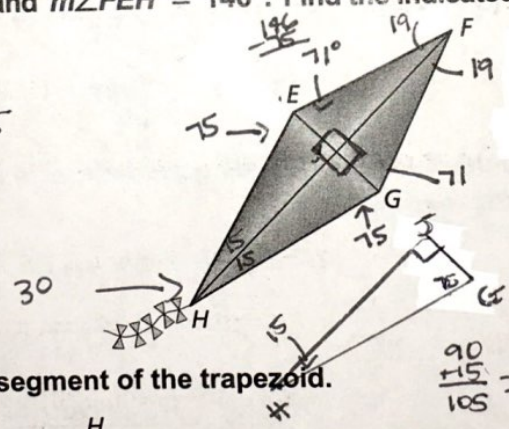
$SO = 92.4$ so $SL \cong LO$
 46.2
 $SO \cong CT$ $SL \cong LO \cong CL \cong LT$

Determine whether the parallelogram with the given vertices is a rectangle, rhombus, or square. Give all names that apply. Explain your reasoning.

23. $A(-6, -2), B(-3, 3), C(2, 0), D(-1, -5)$
24. $L(-3, 4), M(3, 3), N(4, -3), O(-2, -2)$

In kite EFGH, $m\angle FHG = 15^\circ$, and $m\angle FEH = 146^\circ$. Find the indicated measure.

25. $m\angle FEJ$
26. $m\angle EHJ$ $30 \div 2 = 15$
27. $m\angle FGJ$
28. $m\angle EHG$

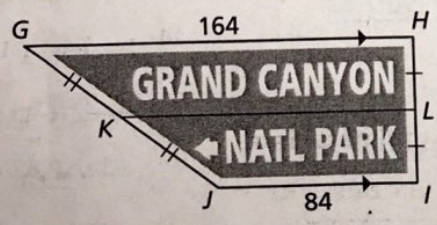


$$\begin{array}{r} 146 \\ \times 2 \\ \hline 292 \\ + 30 \\ \hline 322 \end{array}$$

(SEE WORK)

24. RHOMBUS
(SEE WORK)

29. Find the length of the midsegment of the trapezoid.

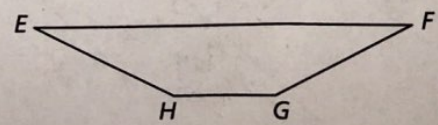


$$\begin{array}{r} 164 \\ + 84 \\ \hline 248 \\ \div 2 \\ \hline 124 \end{array}$$

$$\begin{array}{r} 90 \\ + 15 \\ \hline 105 \\ - 105 \\ \hline 75 \end{array}$$

25. 71
26. 15
27. 71
28. 30
29. 124
30. 19

30. Find the value of x such that $m\angle H = 8x^\circ$ and $m\angle G = (10x - 38)^\circ$ in the isosceles trapezoid.



$$\begin{aligned} 8x &= 10x - 38 \\ -2x &= -38 \\ x &= 19 \end{aligned}$$

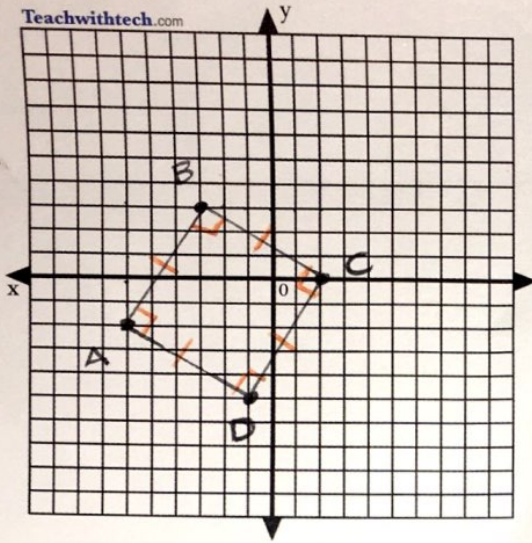
Answers

16. SQUARE
ALL SIDES \cong
ALL ANGLES \cong
17. RECTANGLE
ALL SIDES 90°
OPP SIDES \cong

18. RHOMBUS
OPP \angle s \cong
ALL SIDES WILL BE \cong

19. 46.2
20. 41
21. 92.4
22. 46.2

23. RHOMBUS
RECTANGLE
SQUARE



SQUARE - (ALSO RHOMBUS & RECTANGLE)

ALL SIDES \cong

ALL ANGLES 90°

CHECK SIDES USING DISTANCE FORMULA

$(-6, -2)$ A

$(-3, 3)$ B

$$AB = \sqrt{(-3+6)^2 + (3--2)^2}$$

$$\sqrt{(+3)^2 + (5)^2}$$

$$\sqrt{9+25}$$

$$\sqrt{34}$$

$$BC = \sqrt{(2--3)^2 + (0-3)^2}$$

$$\sqrt{5^2 + (-3)^2}$$

$$\sqrt{25+9}$$

$$\sqrt{34}$$

$(-1, -5)$ D

$(2, 0)$ C

$$DC = \sqrt{(2--1)^2 + (0+5)^2}$$

$$\sqrt{(3)^2 + (5)^2}$$

$$\sqrt{9+25}$$

$$\sqrt{34}$$

$$AD = \sqrt{(-5--2)^2 + (-1--6)^2}$$

$$\sqrt{(-3)^2 + (5)^2}$$

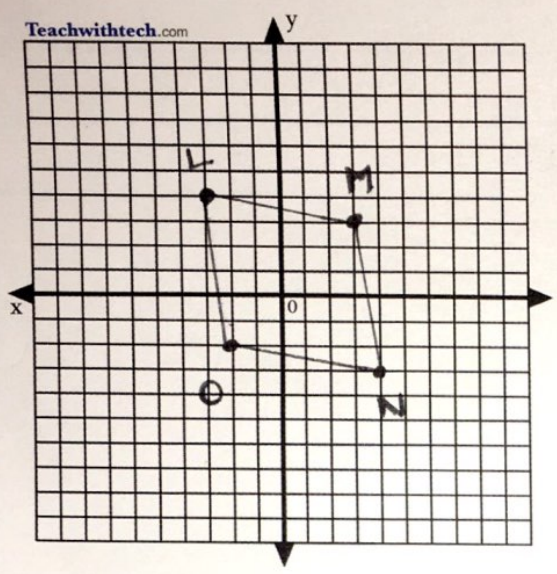
$$\sqrt{9+25}$$

$$\sqrt{34}$$

ALL SIDES \cong

CHECK TO SEE IF ANGLES ARE 90° USING SLOPE

SLOPE OF AB = $\frac{5}{3}$ ← PARALLEL
 SLOPE OF BC = $-\frac{3}{5}$ ← PARALLEL
 SLOPE OF CD = $\frac{5}{3}$ ← PARALLEL
 SLOPE OF AD = $-\frac{3}{5}$ ← PARALLEL



ALL SIDES \cong
 ANGLES NOT 90°

RHOMBUS ONLY

CHECK SIDES USING DISTANCE

$$LM = \sqrt{(3 - (-3))^2 + (3 - 4)^2}$$

$$\sqrt{(6)^2 + (-1)^2}$$

$$\sqrt{36 + 1}$$

$$\sqrt{37}$$

$$OU = \sqrt{(-2 - 4)^2 + (-2 - (-3))^2}$$

$$\sqrt{(-6)^2 + (-1)^2}$$

$$\sqrt{36 + 1}$$

$$\sqrt{37}$$

(-3, 4)
(3, 3)

(-3, 4)
(-2, -2)

$$LO = \sqrt{(-2 - (-3))^2 + (-2 - 4)^2}$$

$$\sqrt{(1)^2 + (-6)^2}$$

$$\sqrt{1 + 36}$$

$$\sqrt{37}$$

$$MN = \sqrt{(4 - 3)^2 + (-3 - 3)^2}$$

$$\sqrt{(1)^2 + (-6)^2}$$

$$\sqrt{1 + 36}$$

$$\sqrt{37}$$

CHECK ANGLES WITH SLOPE

$$LO = -\frac{6}{1} = -6$$

$$MN = -\frac{6}{1}$$

$$ML = -\frac{1}{6}$$

$$NO = -\frac{1}{6}$$

NOT OPPOSITE
 RECIPROALS SO
 NOT 90°